

Report Number: 214-TRC-03-001

Safety Compliance Testing For FMVSS 214

Side Impact Protection

**Mazda Motor Corporation
2003 Mazda Protegé 5 4-door Hatchback**

NHTSA Number: C35402

Transportation Research Center Inc.

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February 27, 2003

Final Report

**U. S. Department Of Transportation
National Highway Traffic Safety Administration
Enforcement**

Office of Vehicle Safety Compliance

400 Seventh Street, S. W.

Room No. 6111 (NVS-220)

Washington, DC 20590

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16. Abstract This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2003 Mazda Protegé 5 4-door hatchback in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on February 12, 2003. The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 km/h, and the ambient temperature at the struck (driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was undetermined. The test or target vehicle's performance is given below:		
	<u>Front SID</u>	<u>Rear SID</u>
Left Upper Rib Acceleration:	51.9 g's	45.6 g's
Left Lower Rib Acceleration:	50.3 g's	49.1 g's
Lower Spine Acceleration:	66.5 g's	53.7 g's
Thoracic Trauma Index, (TTI):	59.2 g's	51.4 g's
Pelvis Acceleration (PEV):	64.5 g's	74.0 g's
The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.		
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Section 1

Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2003 Mazda Protegé 5 4-door hatchback. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001).

Section 2

Summary of Side Impact Test

A 2003 Mazda Protegé 5 4-door hatchback was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 52.9 km/h (32.9 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on February 12, 2003. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 42 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	59.2	51.4
PEV (g)	64.5	74.0

Data Acquisition Explanations

The target vehicle's left side sill at front seat Y-axis acceleration data channel, LFSYG1, recorded questionable data throughout the event. This also affected the integrated velocity and displacement data channels.

The target vehicle's left front door upper centerline Y-axis acceleration data channel, LFUYG1, went open at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity and displacement data channels.

The target vehicle's left middle B-post Y-axis acceleration data channel, LMBYG1, exceeded its full-scale value at approximately 50 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

The target vehicle's left middle A-post Y-axis acceleration data channel, LMAYG1, exceeded its full-scale value at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2003 Mazda Protegé 5
Vehicle Body Style/Color: 4-door hatchback/Sunlight Silver Metallic
VIN: JM1BJ245931111149
Vehicle NHTSA No.: C35402 Build Date: 07/03
Engine Data: 4 Cylinders; CID; 2 Liters; cc
Placement: - Longitudinal; or X Lateral; or - Horizontal
Transmission: 5 Speed; X Manual; - Automatic; X O/D
Final Drive: - RWD; X FWD; - Four-Wheel Drive
Odometer Reading: 86 km
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 220 kPa Front; 220 kPa Rear
Recommended Tire Size: P195/50R16 83V
Tires on Test Vehicle: P195/50R16 Manufacturer: Dunlop Sport 5000

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 0 3rd seat; 5 Total
Type of Front Seats: X Bucket; - Bench; - Split bench
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
Vehicle Max. Capacity Loading = 385.0 kg (A)
No. of Occupants x 68.04 kg. = 340.2 kg (B)
Vehicle Cargo Capacity (A-B) = 44.8 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>369.5</u> kg	Left Rear	=	<u>258.0</u> kg
Right Front	=	<u>377.5</u> kg	Right Rear	=	<u>248.5</u> kg
Total Front	=	<u>747.0</u> kg	Total Rear	=	<u>506.5</u> kg
Front % of Total Weight	=	<u>59.6</u> %	Rear % of Total Weight	=	<u>40.4</u> %
Total Weight	=	<u>1253.5</u> kg			

* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids = 1253.5 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 44.8 kg (B)
Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168.0 kg (C)
Test Vehicle Target Weight: = 1466.3 kg (A+B+C)

Fully Loaded Test Vehicle (UDW + 2 SID(s) + Cargo):

Left Front	=	<u>428.0</u> kg	Left Rear	=	<u>345.0</u> kg
Right Front	=	<u>384.0</u> kg	Right Rear	=	<u>309.5</u> kg
Total Front	=	<u>812.0</u> kg	Total Rear	=	<u>654.5</u> kg
Front % of Total Weight	=	<u>55.4</u> %	Rear % of Total Weight	=	<u>44.6</u> %
Total Weight	=	<u>1466.5</u> kg			

As Tested Weight of Test Vehicle (2 SID(s) + Cargo + Equipment & Instrumentation):

Left Front	=	<u>407.8</u> kg	Left Rear	=	<u>332.2</u> kg
Right Front	=	<u>396.6</u> kg	Right Rear	=	<u>325.4</u> kg
Total Front	=	<u>804.4</u> kg	Total Rear	=	<u>657.6</u> kg
Front % of Total Weight	=	<u>55.0</u> %	Rear % of Total Weight	=	<u>45.0</u> %
Total Weight	=	<u>1462.0</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>655</u>	Right Front <u>646</u>	Right Front <u>636</u>
Left Front <u>652</u>	Left Front <u>628</u>	Left Front <u>631</u>
Right Rear <u>660</u>	Right Rear <u>624</u>	Right Rear <u>609</u>
Left Rear <u>658</u>	Left Rear <u>608</u>	Left Rear <u>608</u>

Test Vehicle Wheelbase: 2610 mm

C.G. = 1174.0 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4192 mm
Left Side = 4184 mm
Centerline = 4308 mm

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2003 Mazda Protegé5 4-door hatchback

NHTSA No.: C35402

Front Seat Cushion Placement: Mid (8th latch position rearward of most forward position)

Total Length of Fore/Aft Adjustment Travel: 240 mm

Total Number of Adjustment Positions or Detents: 17

Front Seat Back Adjustment Position: The back was adjusted to the 5th latch rearward of the first detent.

Seat Back Torso Angle: 14.5 degrees

Second Position Seat Placement: Not adjustable

Total Length Of Fore/Aft Adjustment Travel: N/A mm

Seat Back Adjustment Position: Not adjustable

Adjustable Steering Column Position: Mid (67.6° angle within tilt range of 70.3° - 65.0°)

Window Positions:

Right Front: Open

Right Rear: Open

Left Front: Closed

Left Rear: Closed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent In Fuel Tank:

55.0 liters (fuel tank usable capacity)

52.2 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2610 millimeters

Intended impact point is 365 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 372 millimeters rearward of front axle centerline

Remarks:

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2003/Mazda/Protege 5 Body Style: 4-door hatchback
VIN: JM1BJ24593111114 Build Date: 07/02
NHTSA No.: C35402 Test Date: 2/12/03
Vehicle Overall Length = 4308 mm Overall Width = 1687 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>407.8</u>	kg	Left Rear	=	<u>332.2</u>	kg
Right Front	=	<u>396.6</u>	kg	Right Rear	=	<u>325.4</u>	kg
Total Front	=	<u>804.4</u>	kg	Total Rear	=	<u>657.6</u>	kg
Total Weight	=	<u>1462.0</u>	kg				
Wheelbase	=	<u>2610</u>	mm				
Longitudinal C.G. From Center Of Front Axle	=	<u>1174</u>	mm				
Impact Angle With Respect To Impactor	=	<u>270</u>	degrees				

Impact Point:

Actual Impact Point is 7 mm right of nominal impact ref. line (Lateral)
Actual Impact Point is 1 mm up from nominal impact point (Vertical)

Maximum Exterior Static Crush:¹

1. Level 1 (218 mm above ground) = --- mm
2. Level 2 (479 mm above ground) = --- mm
3. Level 3 (617 mm above ground) = --- mm
4. Level 4 (865 mm above ground) = --- mm
5. Level 5 (1359 mm above ground) = --- mm
Maximum Post-Test Intrusion = --- mm

Occupants:

	<u>Front Passenger</u>	<u>Rear Passenger</u>
Dummy Identification	<u>SID 065</u>	<u>SID 066</u>
Restraints Used	<u>3-pt seat belt</u>	<u>3-pt seat belt</u>

Instrumentation:

Number of Vehicle Data Channels: = 26
Number of Cameras: Onboard = 3 Offboard = 7 Total = 10

¹ Exterior crush data not available because struck side doors were opened after the test before post-test measurements were taken.

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, S/N: 049A0602-2, 058B0502

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the Left

MDB Specifications:

Overall Width of Framework Carriage = 1251 mm
Overall Length of MDB (Incl. honeycomb impact face) = 4014 mm
Wheelbase of Framework Carriage = 2591 mm
Track of Framework Carriage (Front & Rear) = 1881 mm
C.G. Location Rearward of Front Axle = 1115.0 mm

MDB Weight:

Left Front	=	<u>408.8</u>	kg	Left Rear	=	<u>275.0</u>	kg
Right Front	=	<u>368.8</u>	kg	Right Rear	=	<u>312.8</u>	kg
Total Front	=	<u>777.6</u>	kg	Total Rear	=	<u>587.8</u>	kg
Total MDB Weight	=	<u>1365.4</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L) = <u>90</u> degrees							
Impact Speed = <u>52.9</u> km/h							

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	<u>78</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>66</u>	millimeters
3. Row C at Mid Level	=	<u>100</u>	millimeters
4. Row D at Top of Stack Level	=	<u>130</u>	millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Visible Dummy Contact Points:

	<u>Left Front SID</u>	<u>Left Rear SID</u>
Head:	<u>Left shoulder, head restraint</u>	<u>C-pillar, head restraint</u>
Upper Torso:	<u>Door</u>	<u>Door</u>
Lower Torso:	<u>Door</u>	<u>Door</u>
Left Knee:	<u>Door</u>	<u>Door</u>
Right Knee:	<u>Left knee</u>	<u>Left knee</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed shut & latched</u>	<u>Latched & operational</u>
Rear:	<u>Jammed shut & latched</u>	<u>Latched & operational</u>

MDB Distance From Target Impact Point:

Vertical: 1 mm up from target

Horizontal: 7 mm right from target

Arm Rest Locations:

Front: 217 mm below the bottom of the window

Rear: 237 mm below the bottom of the window

Seat Movement:

Front: No seat track movement; seat back bent inboard

Rear: No seat track movement; seat back bent inboard

Glazing Damage:

Windshield: Broken on driver's side

Window: Both left side door windows broke

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

DRIVER DUMMY SERIAL NUMBER: 065

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	51.9 g	@ 35.6 ms	18.2 g	@ 69.4 ms
LATERAL (R)	51.7 g	@ 35.6 ms	18.4 g	@ 69.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	50.3 g	@ 30.0 ms	15.5 g	@ 70.0 ms
LATERAL (R)	50.5 g	@ 30.0 ms	15.9 g	@ 70.0 ms
TTI d (P)	59.2			
TTI d (R)	58.5			

LOWER SPINE ACCELERATION

LATERAL (P)	66.5 g	@ 35.0 ms	14.2 g	@ 63.1 ms
LATERAL (R)	65.3 g	@ 34.4 ms	14.1 g	@ 63.1 ms

PELVIS ACCELERATION

LATERAL (P)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 ms
LATERAL (R)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 5 (Continued)

SID Instrumentation Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

PASSENGER DUMMY SERIAL NUMBER: 066

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	45.6 g	@ 42.5 ms	6.2 g	@ 118.8 ms
LATERAL (R)	44.1 g	@ 42.5 ms	7.1 g	@ 118.8 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	49.1 g	@ 43.1 ms	9.4 g	@ 118.1 ms
LATERAL (R)	47.4 g	@ 43.1 ms	9.7 g	@ 118.1 ms
TTI d (P)	51.4			
TTI d (R)	50.4			

LOWER SPINE ACCELERATION

LATERAL (P)	53.7 g	@ 49.4 ms	8.0 g	@ 122.5 ms
LATERAL (R)	53.3 g	@ 49.4 ms	8.3 g	@ 122.5 ms

PELVIS ACCELERATION

LATERAL (P)	74.0 g	@ 45.6 ms	5.3 g	@ 103.1 ms
LATERAL (R)	73.5 g	@ 45.6 ms	5.3 g	@ 103.1 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

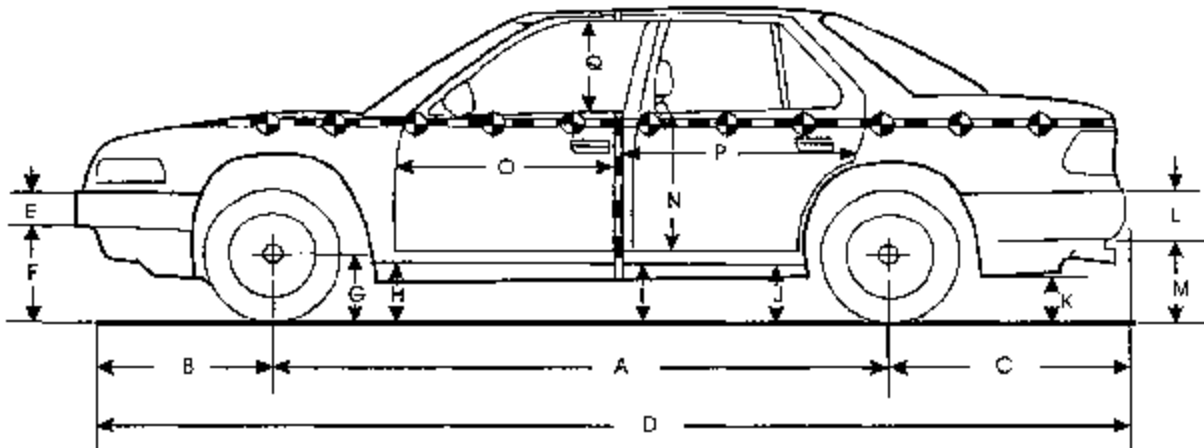
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2610	2610	2581	29
B	875	875	873	2
C	850	850	860	-10
D	4308	4308	4307	1
E	340	340	340	0
F	232	223	236	-13
G	281	281	285	-4
H	191	170	188 ¹	-18 ¹
I	206	171	192 ¹	-21 ¹
J1	202	159	150	9
J2	207	165	178 ¹	-13 ¹
K	275	229	210	19
L	253	253	253	0
M	325	275	248	27
N	670	670	590	80
O	670	670	---	---
P	1355	1355	---	---
Q	450	450	---	---
R	4192	4192	4180	12
S	4184	4184	4165	19
T	1306	1306	1545	-239

D = Length at centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-pillar

J1 = To Pinch Weld

J2 = To Sill

¹ Approximate location was re-established after molding with measurement point came off during crash.

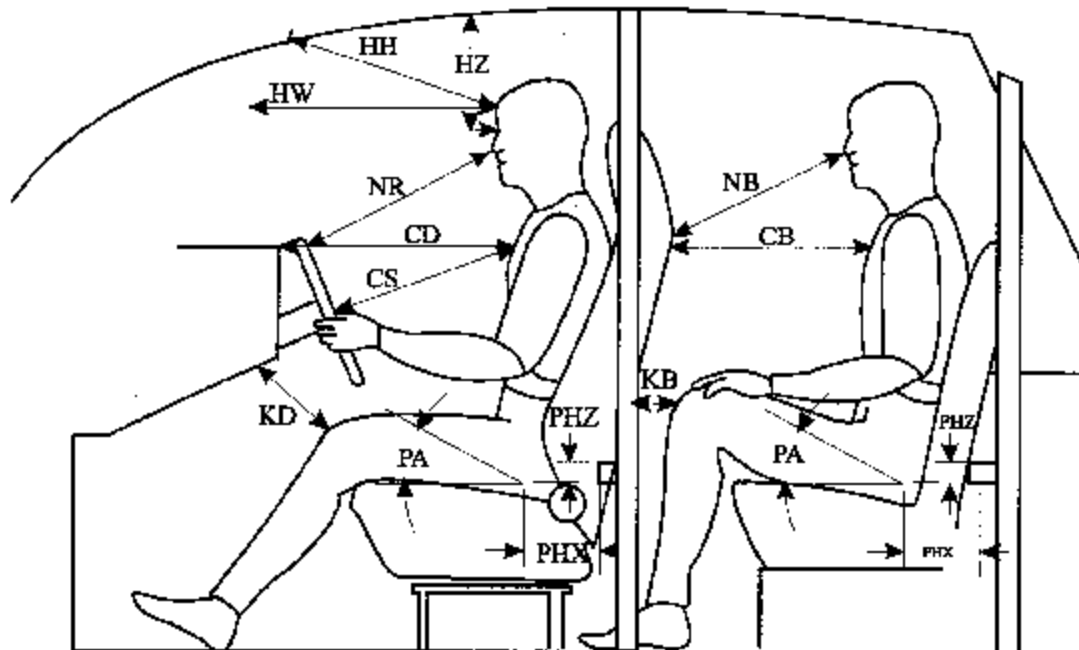
² No valid measurement could be taken because door was damaged during opening, before measurements were taken.

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 65	Left Rear Pass. SID # 66
HH	301	N/A
HW	542	N/A
HZ	165	184
NR/NB	422	613
CD/CB	515	571
CS	321	N/A
KDL(KDA°)/KBL(KBA°)	133(31.2°)	250(21.3°)
KDR(KDA°)/KBR(KBA°)	124(29.4°)	235(31.3°)
PA°	23.3°	23.7°
PHX	219	275
PHZ	128	324

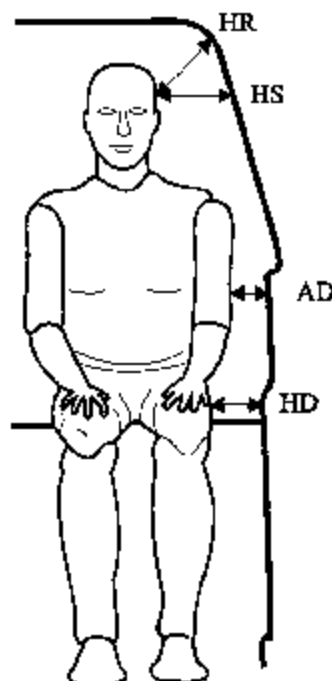
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 65	Left Rear Pass. SID # 66
HR	169	198
HS	275	305
AD*	Lower: 96 Upper: 78	Lower: 99 Upper: 95
HD	128	162

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

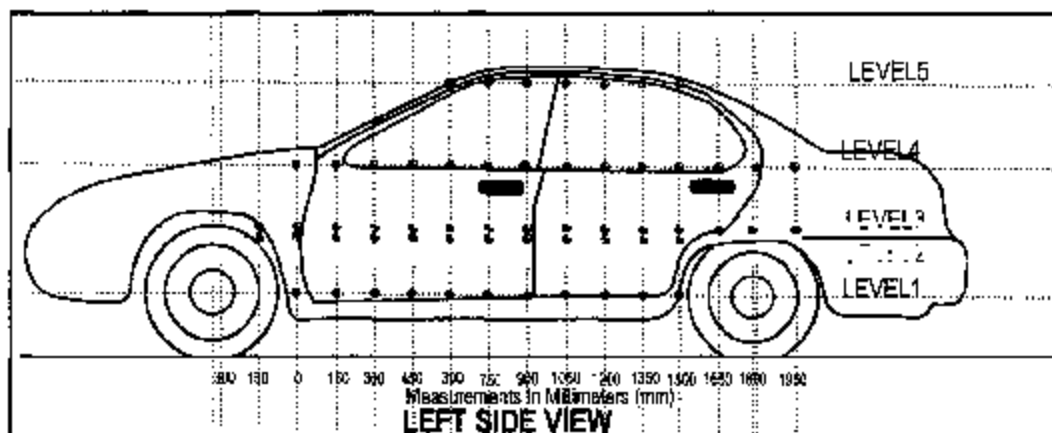
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1359</u>	mm
Level 4 @ Window Sill	=	<u>865</u>	mm
Level 3 @ Mid Door	=	<u>617</u>	mm
Level 2 @ Occupant H-Point	=	<u>479</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>218</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 Mazda Protegé S 4-door hatchback

NHTSA No.: C35402

		(mm) From Impact Point													
Location	Height	-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	218	Pre ¹	---	---	697	665	---	---	---	675	673	670	672	671	672
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
Level 2 H-Point	479	Pre ¹	---	---	721	684	---	---	---	658	656	648	658	658	658
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
Level 3 Mid-Door	617	Pre ¹	---	---	726	702	658	---	650	658	660	653	654	655	653
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
Level 4 Window Sill	865	Pre ¹	---	---	830	790	768	746	735	719	718	710	707	704	700
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
Level 5 Window Top	1359	Pre ¹	---	---	---	---	---	---	---	---	---	---	---	---	940
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

		(mm) From Impact Point														
Location	Height	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	218	Pre ¹	673	673	673	678	674	683	683	---	---	---	---	700		
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 2 H-Point	479	Pre ¹	660	658	656	657	661	663	666	---	---	---	---	---		
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 3 Mid-Door	617	Pre ¹	656	653	653	652	656	662	662	660	---	---	---	---		
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 4 Window Sill	865	Pre ¹	698	694	691	692	696	695	700	703	703	710	720	730	743	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	
Level 5 Window Top	1359	Pre ¹	925	921	920	923	923	921	925	932	940	950	963	983	---	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	

¹ No post crush measurements or crush differences are available because struck side doors were opened before post-test measurements were taken.

Data Sheet 11

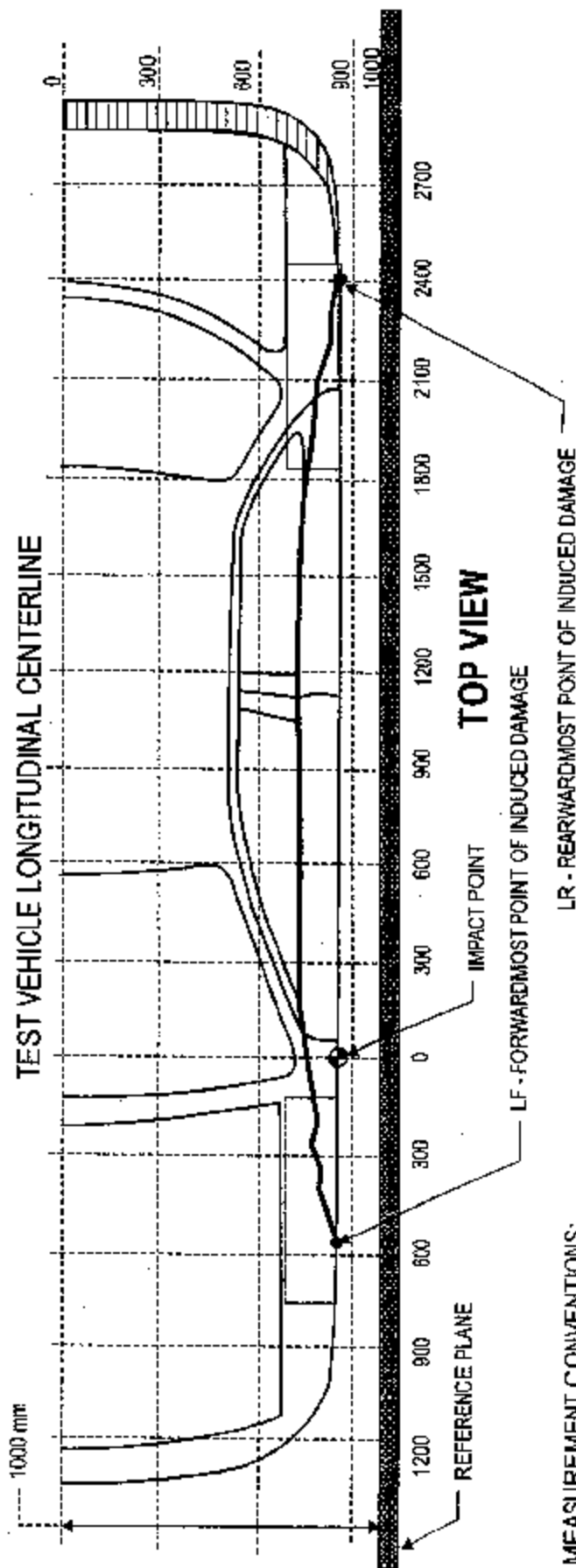
Vehicle Damage Profile Distances

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.

TEST VEHICLE LONGITUDINAL CENTERLINE



TOP VIEW

MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm) ¹	Pre-Test (mm)	Static Crush (mm) ¹
6: LF = -300 mm (Level 4)	---	735	---
5: 300 mm (Level 4)	---	710	---
4: 900 mm (Level 4)	---	698	---
3: 1500 mm (Level 4)	---	696	---
2: 2100 mm (Level 4)	---	703	---
1: LR = 2400 mm (Level 4)	---	720	---

¹ Struck side doors were opened before post-test measurements were taken. Full length of induced damage was -200 to 2270 mm.

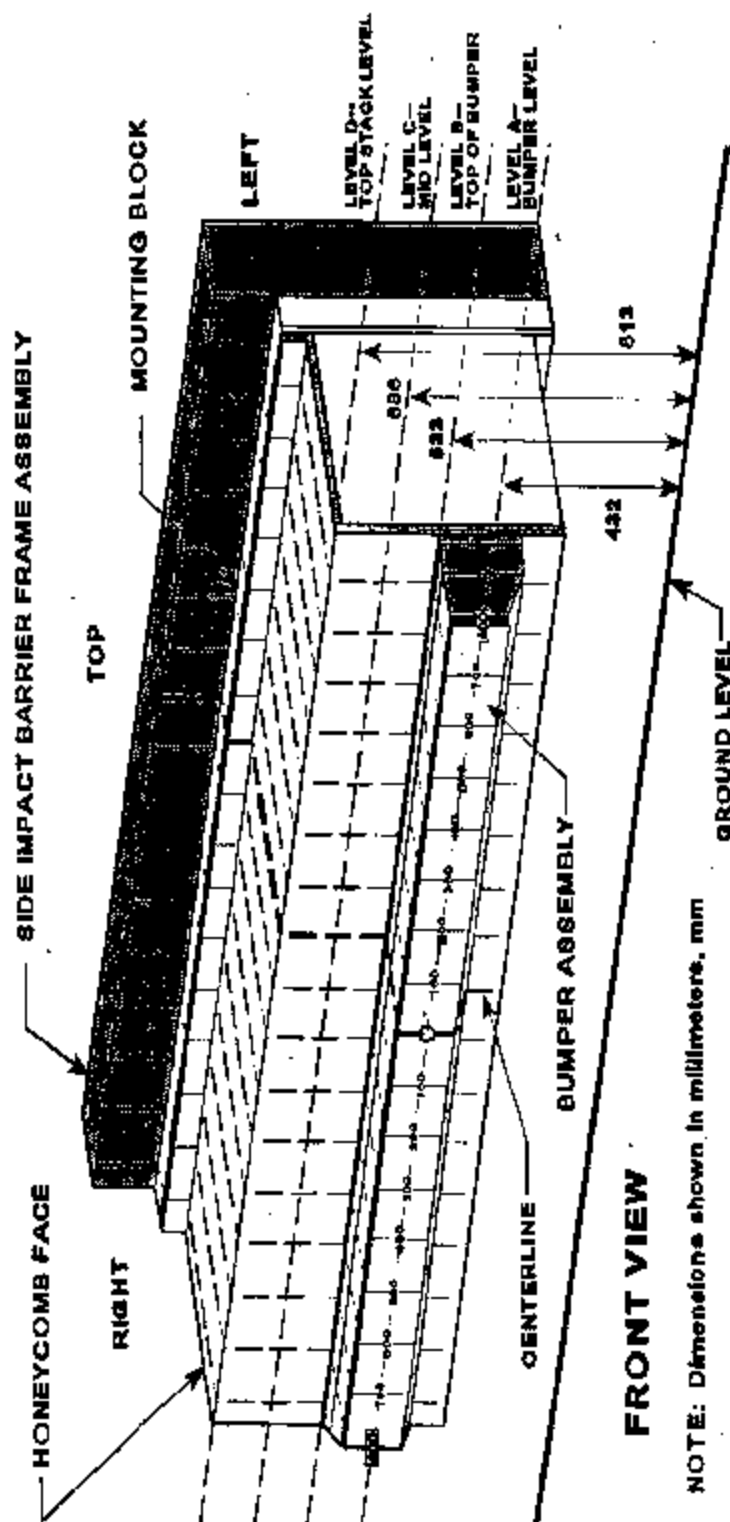
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Data Sheet 12 (Continued)
Exterior Static Crush For Impact Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Location	Height At CL	Distance Right of Center (mm)									Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800	
Top-Stack Level - Level D	814	-35	2	5	4	3	1	-1	1	1	-1	-1	-2	-4	-17	-51	-86	-130	
Mid Level Level C	685	-36	-2	2	1	0	-5	-5	-1	-2	0	1	0	-1	-2	-10	-57	-100	
Top Bumper Level - Level B	560	-66	-34	-10	-6	-6	-6	-3	-1	-1	-2	-1	0	0	0	-6	-27	-33	
Mid Bumper Level - Level A	432	-50	-49	-48	-48	-50	-38	-33	-27	-28	-28	-28	-33	-29	-36	-52	-72	-78	

All measurements are in millimeters and have a tolerance of ± 3 mm.

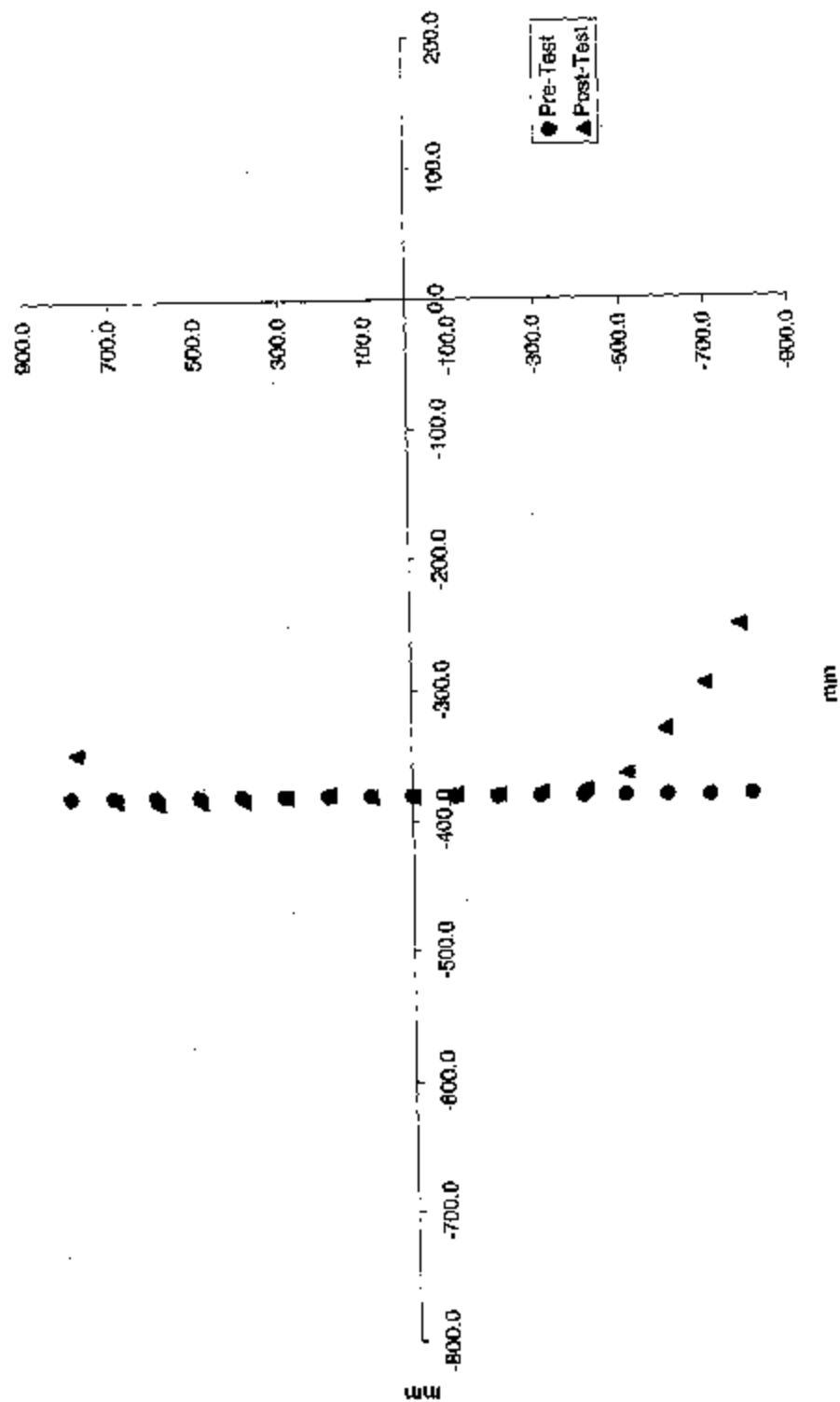
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level D - Deformable Barrier Face Profile 1-17

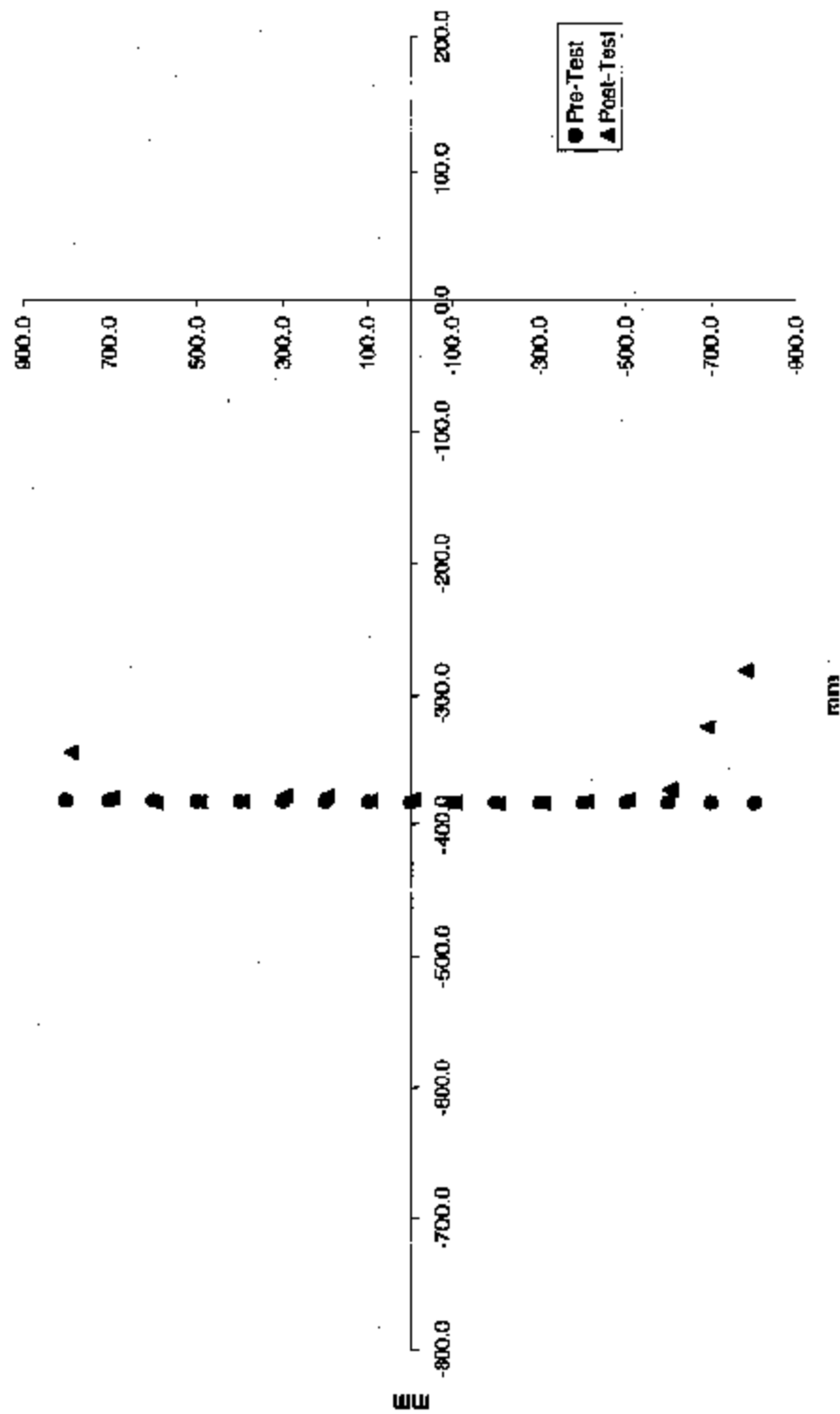


Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level C - Deformable Barrier Face Profile 18-34



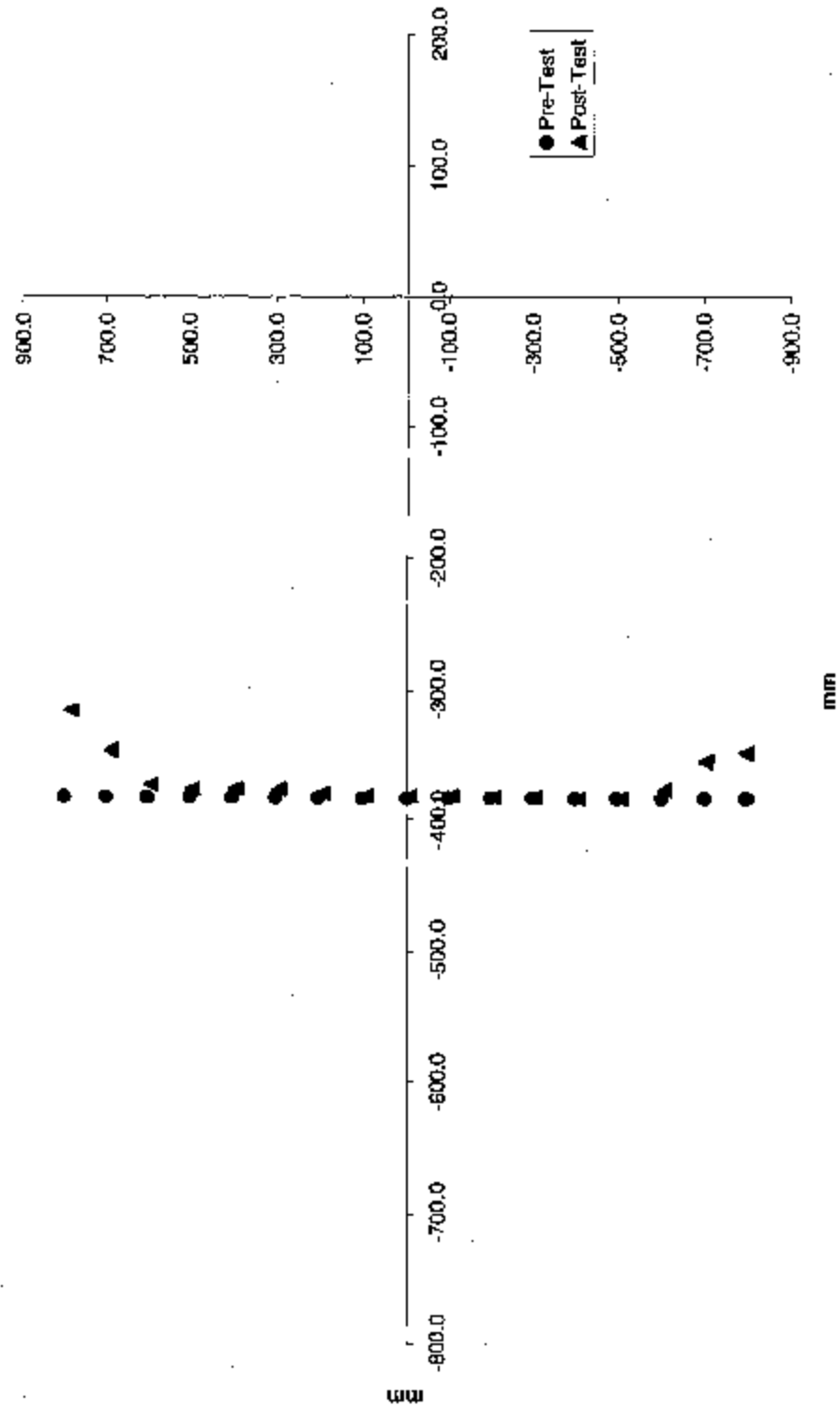
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level B - Deformable Barrier Face Profile 35-51



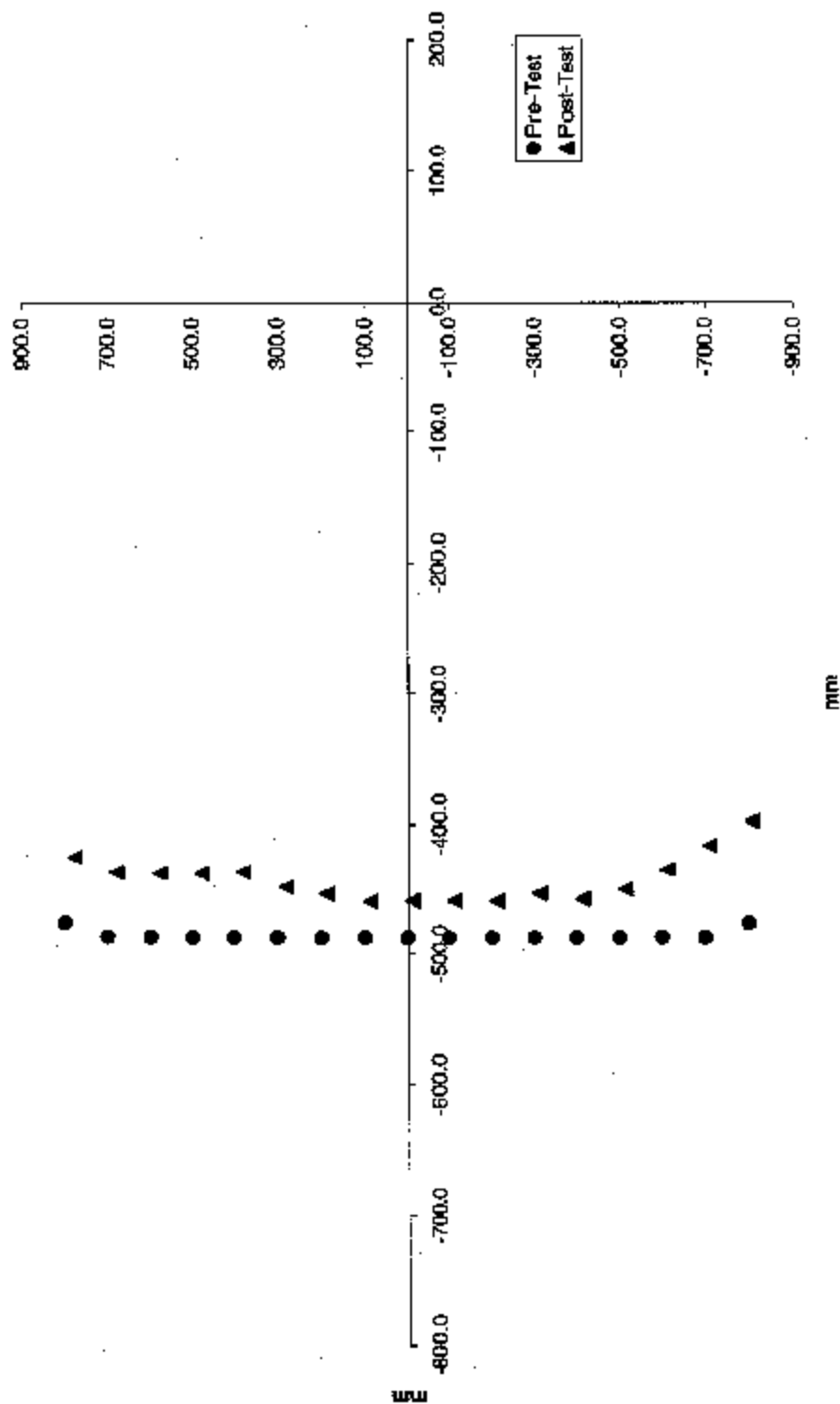
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level A - Deformable Barrier Face Profile 52-68



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-381	801	-39
2	-381	701	-40
3	-381	600	-40
4	-381	500	-41
5	-381	400	-41
6	-381	301	-41
7	-381	200	-42
8	-382	100	-42
9	-382	0	-43
10	-382	-100	-43
11	-382	-199	-44
12	-382	-300	-44
13	-382	-400	-44
14	-382	-500	-45
15	-382	-600	-45
16	-383	-700	-46
17	-383	-800	-46

Post-Test

Index	Xmm	Ymm	Zmm
1	-346	790	-53
2	-383	698	-53
3	-386	598	-52
4	-385	497	-50
5	-384	397	-49
6	-382	298	-47
7	-380	197	-46
8	-382	97	-44
9	-382	-4	-43
10	-381	-103	-41
11	-381	-203	-39
12	-380	-303	-38
13	-378	-403	-38
14	-365	-502	-38
15	-331	-595	-44
16	-296	-688	-50
17	-252	-776	-58

Difference

Index	Xmm	Ymm	Zmm
1	-35	12	14
2	2	3	13
3	5	3	11
4	4	3	9
5	3	3	7
6	1	3	5
7	-1	3	3
8	1	3	2
9	1	3	0
10	-1	3	-2
11	-1	4	-4
12	-2	4	-6
13	-4	4	-7
14	-17	2	-7
15	-51	-5	-2
16	-86	-12	4
17	-130	-24	12

Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-381	802	-167
19	-381	701	-168
20	-381	601	-169
21	-381	501	-169
22	-382	401	-170
23	-382	302	-171
24	-382	202	-171
25	-382	100	-171
26	-382	0	-172
27	-383	-99	-172
28	-382	-199	-172
29	-382	-299	-173
30	-382	-399	-173
31	-382	-499	-173
32	-382	-598	-174
33	-383	-699	-175
34	-383	-800	-176

Post-Test

Index	Xmm	Ymm	Zmm
18	-345	789	-181
19	-379	695	-182
20	-383	595	-180
21	-383	496	-179
22	-382	396	-178
23	-377	296	-176
24	-377	196	-175
25	-381	95	-173
26	-380	-5	-171
27	-383	-104	-170
28	-383	-204	-168
29	-383	-305	-167
30	-382	-405	-165
31	-381	-505	-164
32	-373	-603	-165
33	-326	-690	-174
34	-283	-780	-183

Difference

Index	Xmm	Ymm	Zmm
18	-36	13	14
19	-2	6	13
20	2	5	11
21	1	5	10
22	0	5	8
23	-5	5	6
24	-5	5	3
25	-1	5	1
26	-2	5	-1
27	0	5	-2
28	1	5	-4
29	0	5	-6
30	-1	6	-8
31	-2	6	-9
32	-10	5	-9
33	-57	-8	-1
34	-100	-20	7

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-381	802	-294
36	-382	701	-294
37	-382	602	-294
38	-382	501	-296
39	-382	402	-295
40	-382	302	-295
41	-382	202	-296
42	-383	101	-297
43	-383	1	-298
44	-383	-99	-298
45	-383	-199	-298
46	-383	-298	-299
47	-383	-399	-299
48	-383	-499	-300
49	-383	-599	-301
50	-383	-699	-301
51	-383	-799	-301

Post-Test

Index	Xmm	Ymm	Zmm
35	-316	785	-295
36	-348	689	-301
37	-372	593	-304
38	-376	493	-304
39	-376	394	-302
40	-376	294	-299
41	-379	194	-299
42	-381	93	-298
43	-381	-7	-297
44	-381	-107	-295
45	-382	-207	-294
46	-382	-306	-292
47	-384	-407	-290
48	-383	-506	-289
49	-377	-607	-288
50	-356	-704	-284
51	-350	-800	-286

Difference

Index	Xmm	Ymm	Zmm
35	-66	17	1
36	-34	12	7
37	-9	9	10
38	-6	8	9
39	-6	8	7
40	-6	8	4
41	-3	8	3
42	-1	8	1
43	-1	8	-1
44	-2	8	-4
45	-1	8	-5
46	0	8	-7
47	0	8	-8
48	0	8	-10
49	-6	8	-12
50	-27	5	-17
51	-33	1	-16

Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-474	801	-418
53	-485	702	-418
54	-485	602	-419
55	-486	502	-420
56	-486	403	-421
57	-486	302	-422
58	-487	202	-422
59	-487	102	-424
60	-487	2	-424
61	-487	-98	-425
62	-487	-198	-425
63	-487	-297	-426
64	-487	-398	-426
65	-487	-498	-427
66	-487	-597	-428
67	-487	-698	-428
68	-476	-795	-430

Post-Test

Index	Xmm	Ymm	Zmm
52	-424	780	-441
53	-436	681	-440
54	-437	581	-439
55	-438	481	-436
56	-436	382	-434
57	-448	283	-435
58	-454	190	-437
59	-460	90	-438
60	-459	-10	-437
61	-459	-110	-434
62	-459	-211	-436
63	-454	-310	-433
64	-458	-410	-433
65	-450	-510	-431
66	-435	-609	-428
67	-415	-707	-424
68	-398	-804	-422

Difference

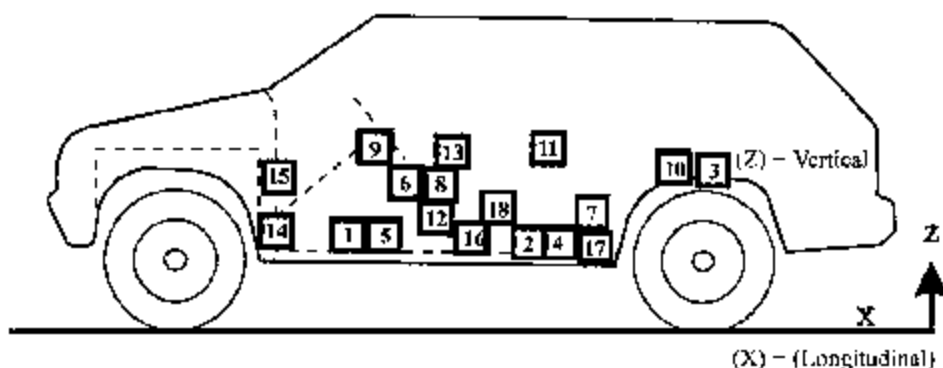
Index	Xmm	Ymm	Zmm
52	-50	21	22
53	-49	21	22
54	-48	21	20
55	-48	21	16
56	-50	21	13
57	-38	19	13
58	-33	12	15
59	-27	12	14
60	-28	12	13
61	-28	12	9
62	-28	12	10
63	-33	13	7
64	-29	13	6
65	-36	13	4
66	-52	12	0
67	-72	9	-4
68	-78	9	-8

Data Sheet 13

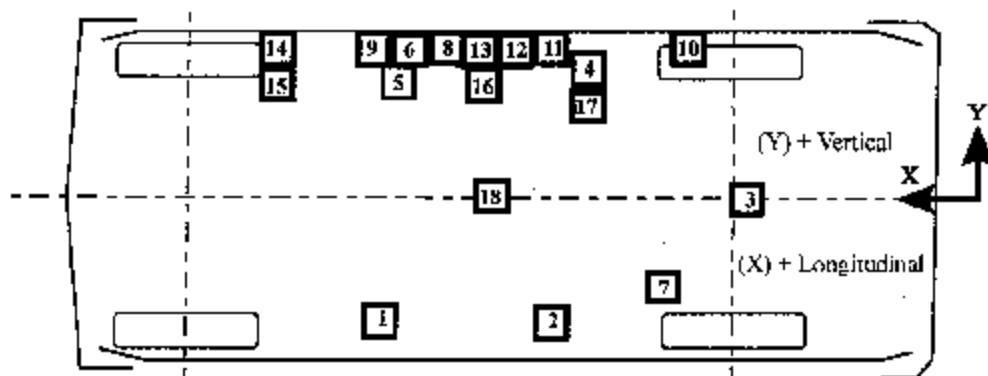
Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Side View



Bottom View

- | | |
|------------------------------------|--|
| 1-Right Front Side Sill | 10-Left Rear Door Mid Rear |
| 2-Right Side Sill at Rear Seat | 11-Left Rear Door Upper Centerline |
| 3-Rear Floorpan Above Axle | 12-Left Side Lower B-pillar |
| 4-Left Side Sill at Rear Seat | 13-Left Side Middle B-pillar |
| 5-Left Front Side Sill | 14-Left Side Lower A-pillar |
| 6-Left Front Door on Centerline | 15-Left Side Middle A-pillar |
| 7-Right Rear Occupant Compartment | 16-Left Side Front Seat Track at H-point |
| 8-Left Front Door Mid Rear | 17-Left Rear Seat Track at H-point |
| 9-Left Front Door Upper Centerline | 18-Vehicle Center of Gravity |

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

No. LOCATION	X	Y	Z	POSITIVE DIRECTION	NEGATIVE DIRECTION
1 RIGHT SIDE SILL AT FRONT SEAT	2660 mm	670 mm	-256 mm		
LONGITUDINAL				25.6 g @ 31.8 ms	4.8 g @ 26.1 ms
LATERAL				21.1 g @ 9.2 ms	2.3 g @ 293.8 ms
VERTICAL				2.7 g @ 125.3 ms	5.4 g @ 8.8 ms
RESULTANT				27.3 g @ 31.8 ms	
2 RIGHT SIDE SILL AT REAR SEAT	1670 mm	660 mm	-257 mm		
LONGITUDINAL				3.6 g @ 47.5 ms	5.3 g @ 33.9 ms
LATERAL				19.2 g @ 23.5 ms	2.2 g @ 125.3 ms
VERTICAL				4.3 g @ 37.8 ms	4.9 g @ 13.0 ms
RESULTANT				19.5 g @ 23.4 ms	
3 REAR FLOORPAN ABOVE AXLE	880 mm	0 mm	-451 mm		
LONGITUDINAL				1.5 g @ 130.2 ms	7.2 g @ 29.2 ms
LATERAL				20.1 g @ 35.0 ms	2.3 g @ 160.7 ms
VERTICAL				10.1 g @ 21.7 ms	8.1 g @ 25.5 ms
RESULTANT				21.6 g @ 33.9 ms	
4 LEFT SIDE SILL AT REAR SEAT	1694 mm	-660 mm	-273 mm		
LATERAL				36.7 g @ 6.3 ms	4.7 g @ 172.6 ms
5 LEFT SIDE SILL AT FRONT SEAT	2669 mm	-670 mm	-216 mm		
LATERAL				20.6 g @ 15.4 ms	37.9 g @ 8.2 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

No. LOCATION

X

Y

Z

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

6 LEFT FRONT DOOR ON CENTERLINE LATERAL	2415 mm	-746 mm	-590 mm	196.5 g @ 8.8 ms	92.0 g @ 26.9 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1570 mm	625 mm	-327 mm	20.0 g @ 23.4 ms	2.3 g @ 125.5 ms
8 LEFT FRONT DOOR MIDREAR LATERAL	2070 mm	-720 mm	-590 mm	130.2 g @ 7.1 ms	49.8 g @ 22.8 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	2415 mm	-715 mm	-845 mm	---	---
10 LEFT REAR SIDE PANEL MIDREAR LATERAL	1190 mm	-715 mm	-579 mm	52.8 g @ 7.5 ms	32.1 g @ 174.5 ms
11 LEFT REAR SIDE PANEL UPPER CENTERLINE LATERAL	1420 mm	-705 mm	-877 mm	205.1 g @ 24.6 ms	133.5 g @ 35.3 ms
12 LEFT LOWER B-POST LATERAL	1800 mm	-690 mm	-343 mm	117.0 g @ 5.5 ms	18.0 g @ 31.4 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1
NO. LOCATION

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

X

Y

Z

13 LEFT MIDDLE B-POST LATERAL ¹	1865 mm	-700 mm	-829 mm	-----	@	-----	@	-----
14 LEFT LOWER A-POST LATERAL	2905 mm	-760 mm	-385 mm	123.6 g	@	3.9 ms	32.7 g	@ 28.5 ms
15 LEFT MIDDLE A-POST LATERAL ¹	2905 mm	-750 mm	-620 mm	-----	@	-----	@	-----
16 LEFT FRONT SEAT TRACK LATERAL	2239 mm	-670 mm	-226 mm	61.6 g	@	6.1 ms	24.3 g	@ 30.6 ms
17 LEFT REAR SEAT TRACK LATERAL	1493 mm	-625 mm	-340 mm	20.9 g	@	11.4 ms	2.3 g	@ 173.8 ms
18 VEHICLE CENTER OF GRAVITY	2257 mm	0 mm	-354 mm					
LONGITUDINAL				3.0 g	@	45.2 ms	8.7 g	@ 23.6 ms
LATERAL				24.4 g	@	18.7 ms	4.3 g	@ 125.2 ms
VERTICAL				14.4 g	@	7.0 ms	6.5 g	@ 28.1 ms
RESULTANT				25.6 g	@	18.8 ms		

MEASUREMENT REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE
Z: + DOWNWARD FROM GROUND LEVEL

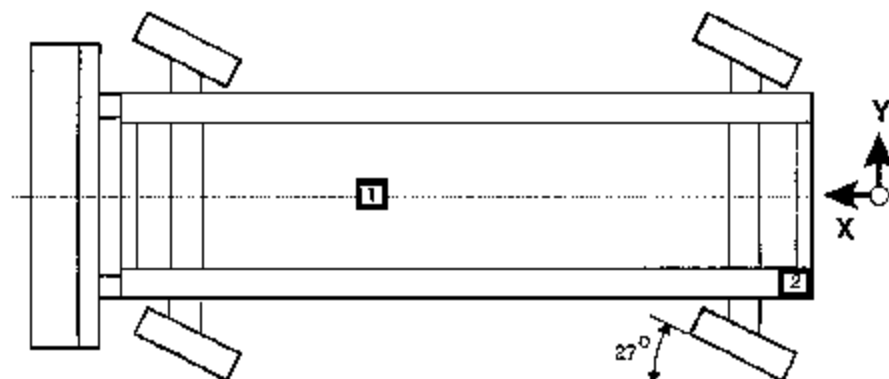
For acceleration data sign convention, see Report Sign Convention in Appendix D.
¹ See Data Acquisition Explanations

Data Sheet 14

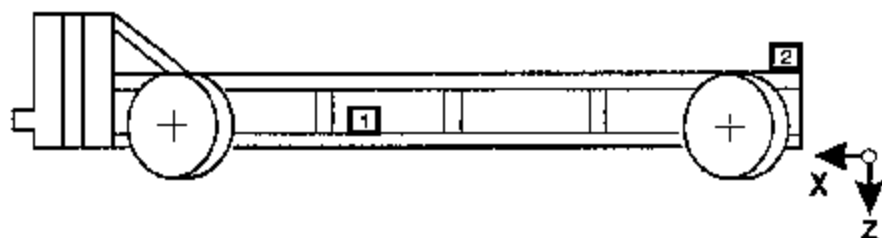
MDB Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1853	0	-519				
	Longitudinal X				1.7	146.4	-19.6	41.2
	Lateral Y				9.7	11.1	-7.4	36.5
	Vertical Z				4.3	39.0	-2.8	119.0
	Resultant R				19.9	40.8	0.1	-10.6
2	Rear Frame Member	411	-738	-628				
	Longitudinal X				2.2	132.2	-21.0	35.3
	Lateral Y				3.2	23.8	-2.1	56.2

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

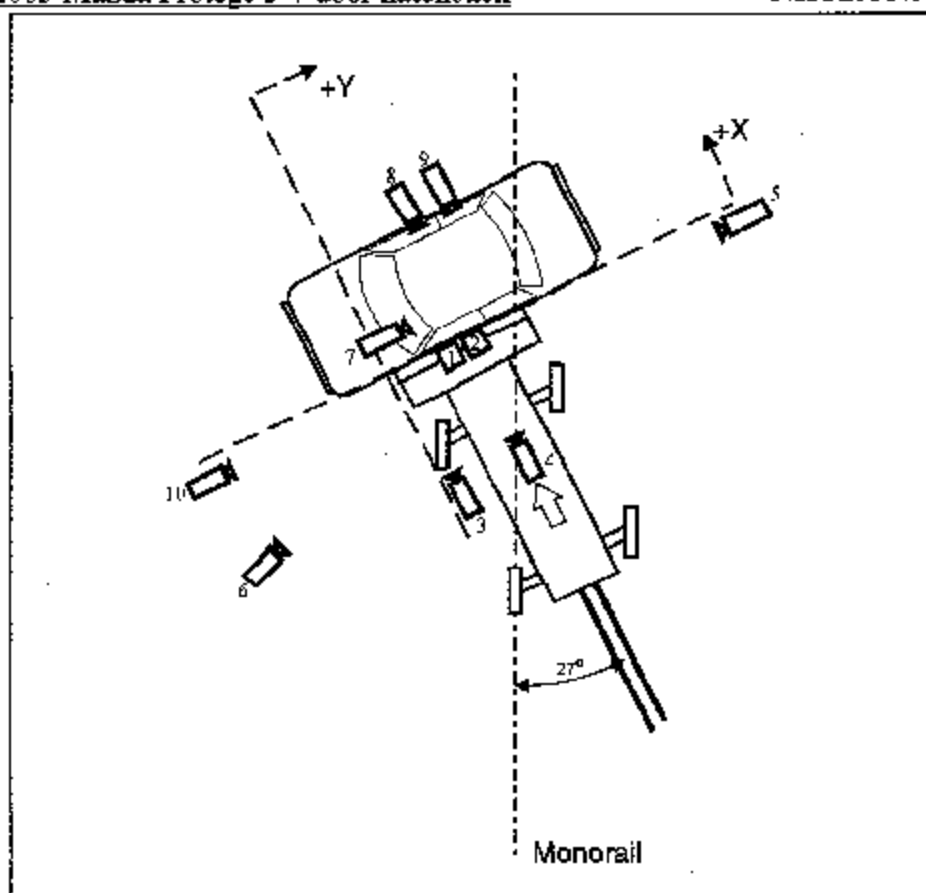
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Impact
Area

Camera Number	Location	Location, mm			Angle (deg)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	260	2260	5750	-80.1	13	----
2	Overhead tight	0	1915	5754	-88.3	25	1000
3	Onboard MDB left side	-1750	-40	780	0.0	13	1005
4	Onboard MDB center	-2500	880	1397	-6.8	25	1025
5	Right side of MDB	-36	11850	1119	-0.1	13	1010
6	Left side of MDB	-3000	-4430	1223	-2.3	13	885
7	Onboard vehicle front	525	450	1150	-3.8	8	630
8	Onboard side front door	1639	805	1010	-4.6	8	----
9	Onboard side rear door	1635	1820	1030	-2.2	8	405
10	Real-time Panning	-259	-5050	1105	-4.3	13	----

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

¹ No LED's; unable to time.

² Camera ran too slow to time.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C35402

Test Date: 02/25/03

Vehicle Year/Make/Model/Body Style: 2003 Mazda Protegé 5 4-door hatchback

Test Vehicle Impact Type :

- ☐ Frontal (48.28 km/h)
☐ Oblique (48.28 km/h) with ____° barrier
face first contacting the (driver/passenger) side
☐ Rear Moving Barrier (48.28 km/h)
☐ Lateral Moving Barrier (32.19 km/h)
☒ Side Impact Moving Deformable Barrier
(52.9 km/h) contacting the driver's side_ side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>2</u>	minutes	<u>0</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
Total	<u>7</u>	minutes	<u>0</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

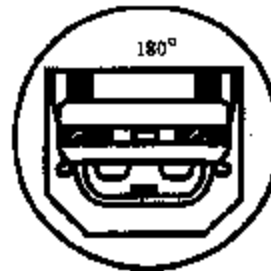
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 2 minutes 0 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

Total 7 minutes 0 seconds

Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

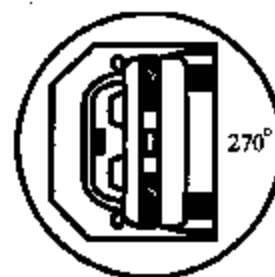
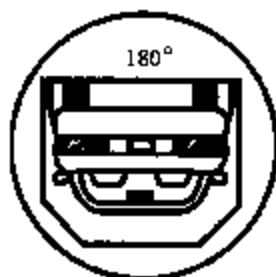
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 2 minutes 0 seconds

(Spec. Range – 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

Total 7 minutes 0 seconds

Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

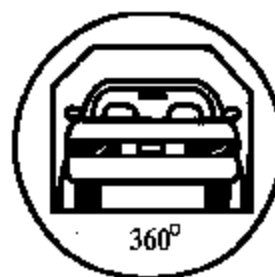
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 2 minutes 0 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + 5 minutes 0 seconds

Total 7 minutes 0 seconds

Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

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Figure A-1 Pre-Test Front View of Test Vehicle

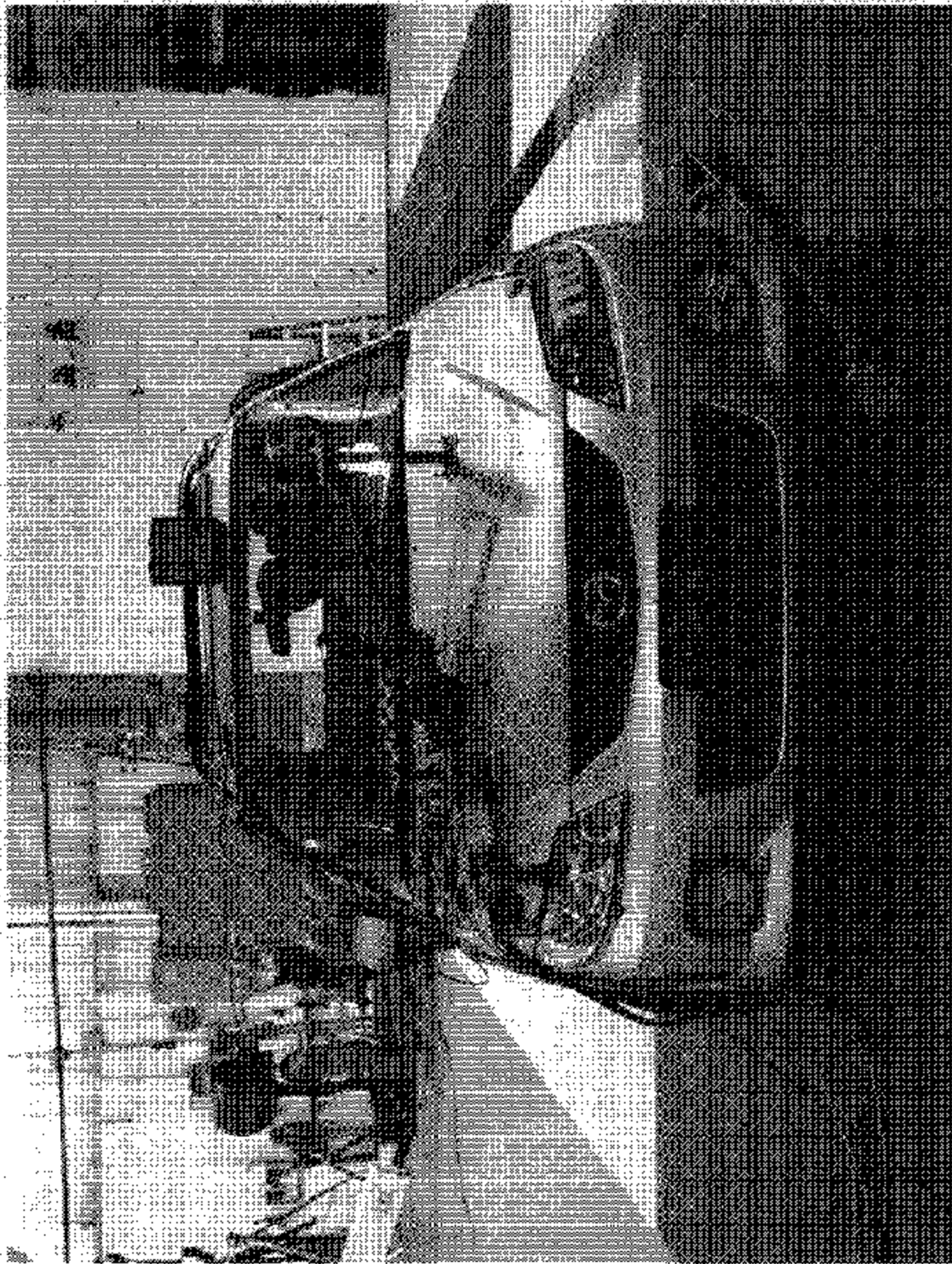


Figure A-2 Post-Test Front View of Test Vehicle

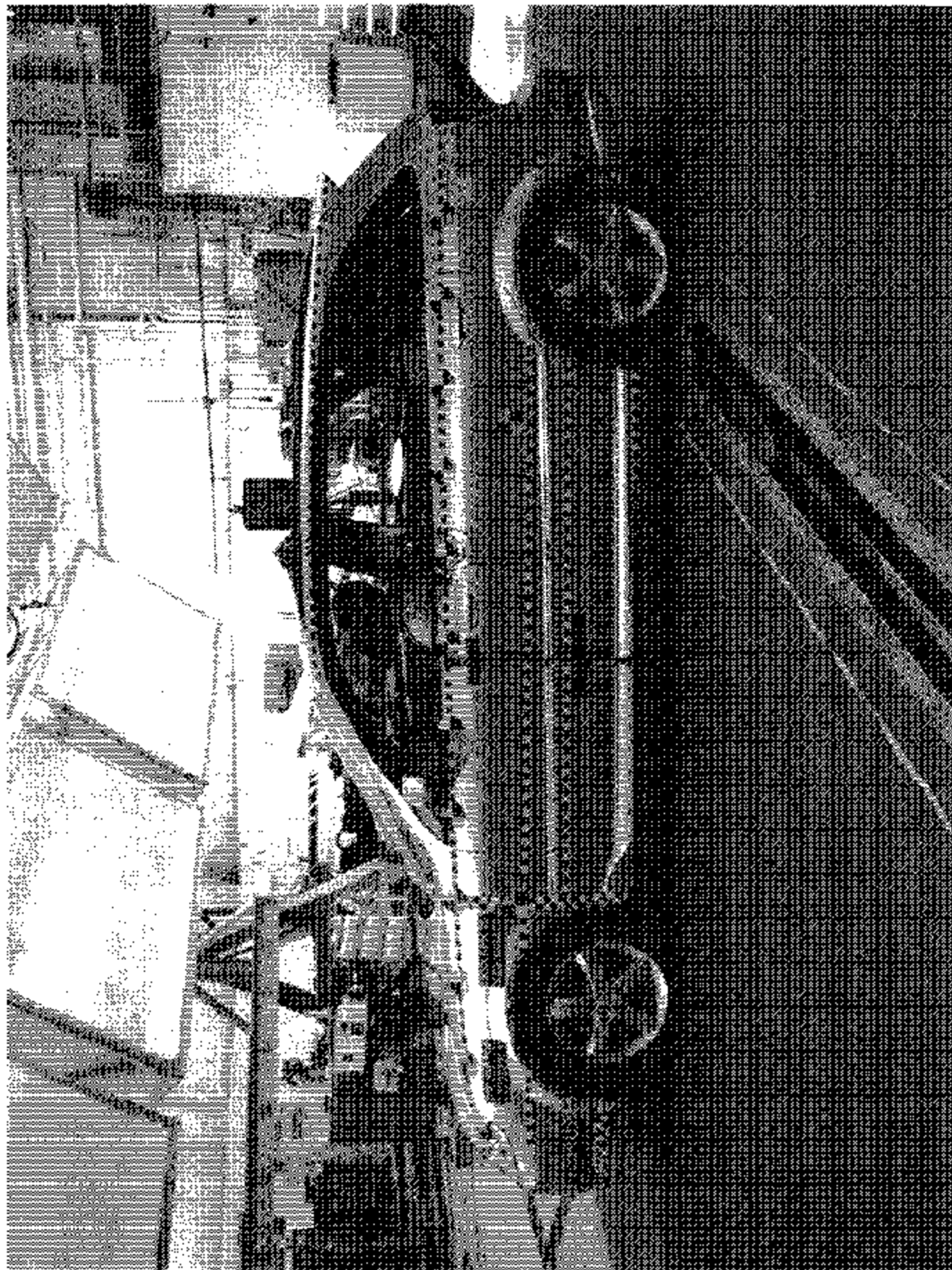


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

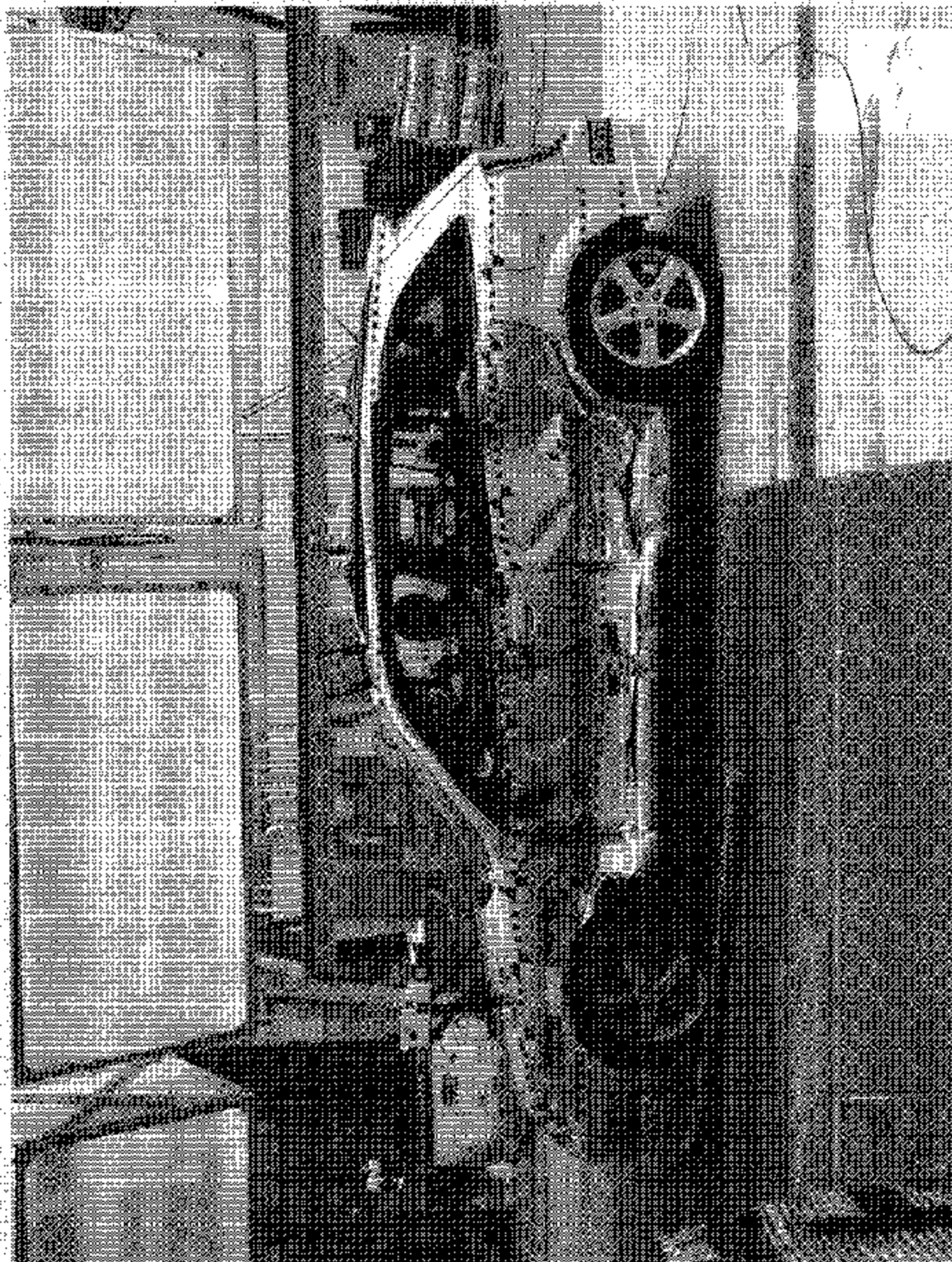


Figure A-4 Post-Test Impacted Side View of Test Vehicle

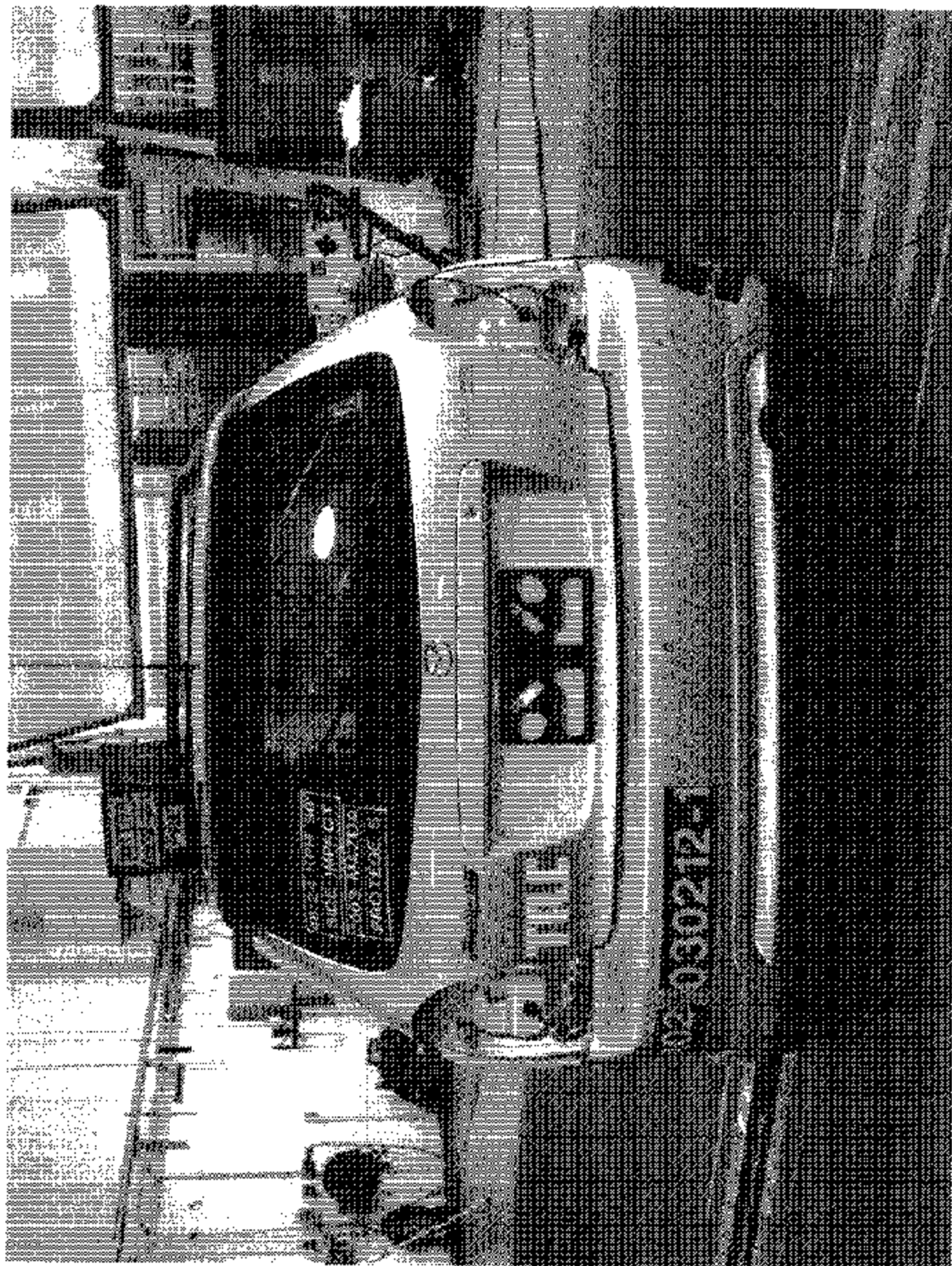


Figure A-5 Pre-Test Rear View of Test Vehicle

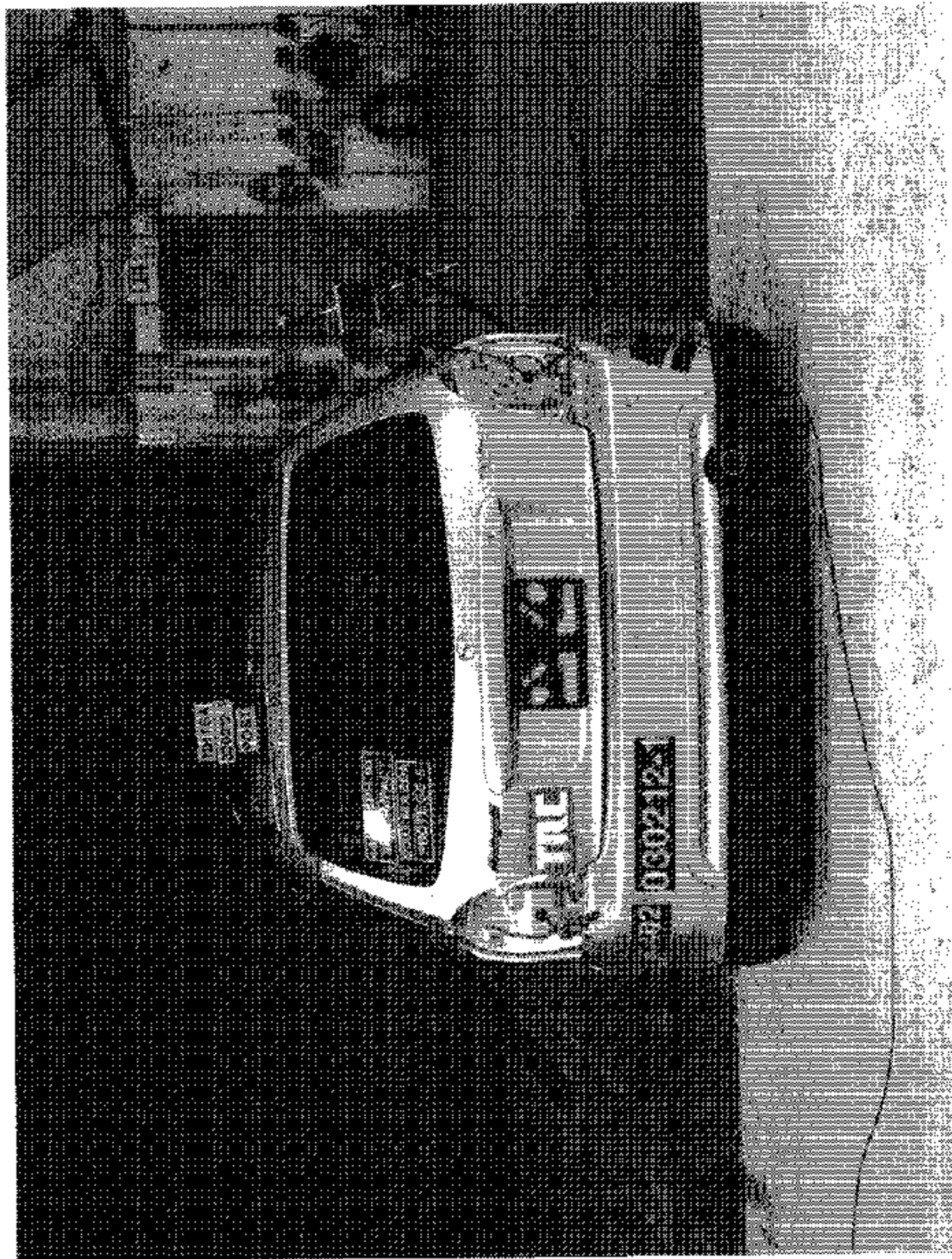


Figure A-6 Post-Test Rear View of Test Vehicle

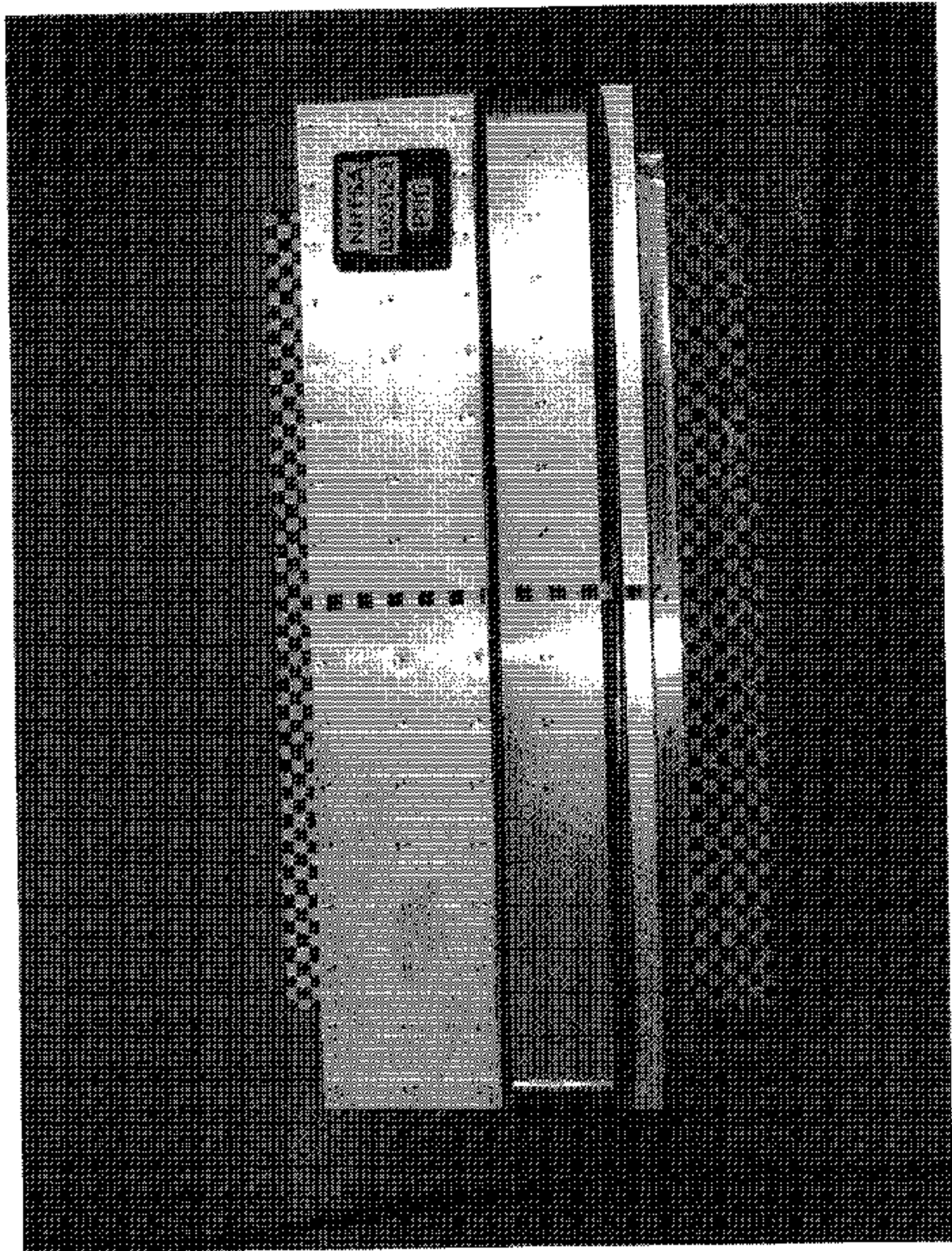


Figure A-7 Pre-Test Frontal View of Impactor Face

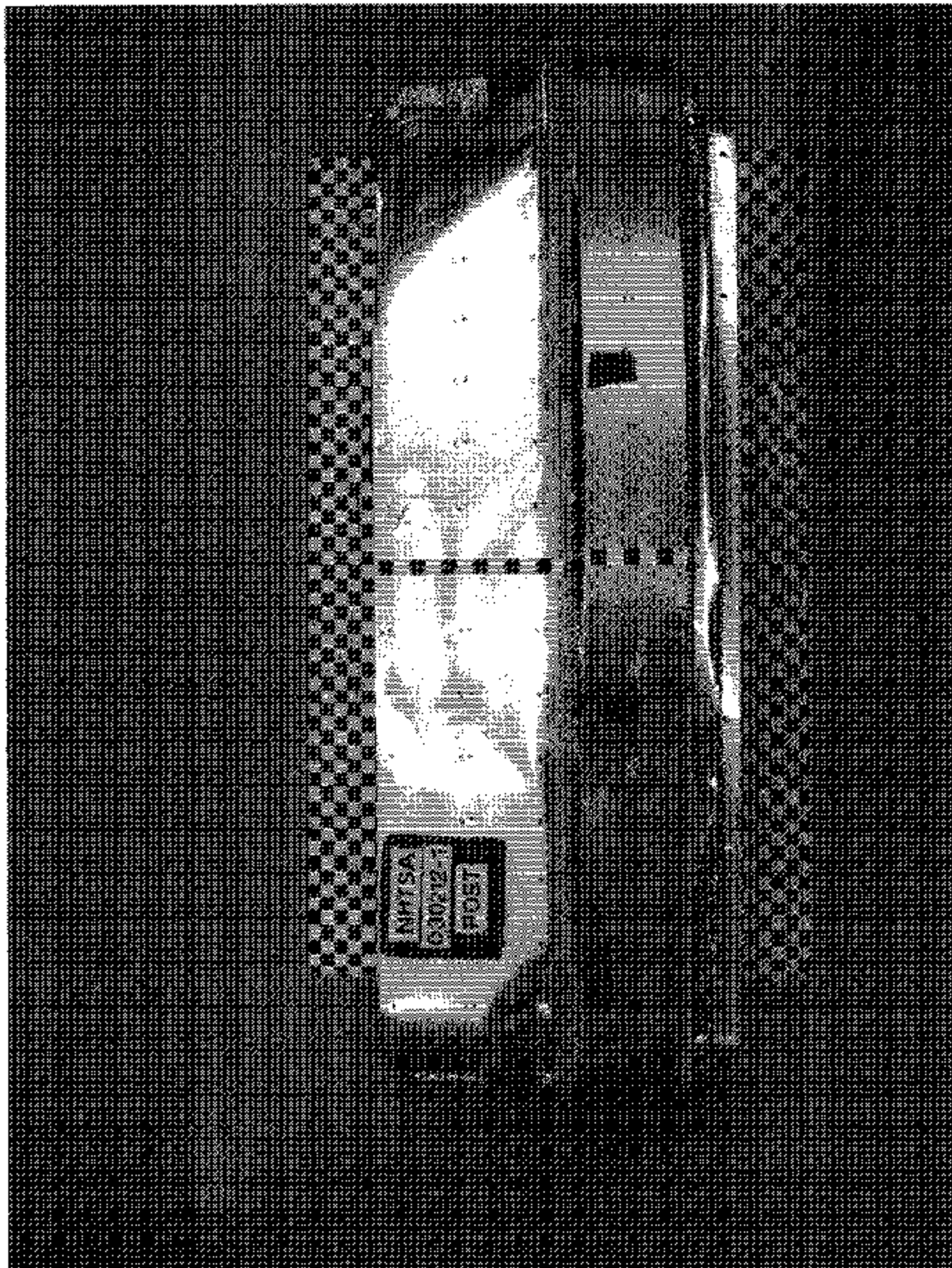


Figure A-8 Post-Test Frontal View of Impactor Face

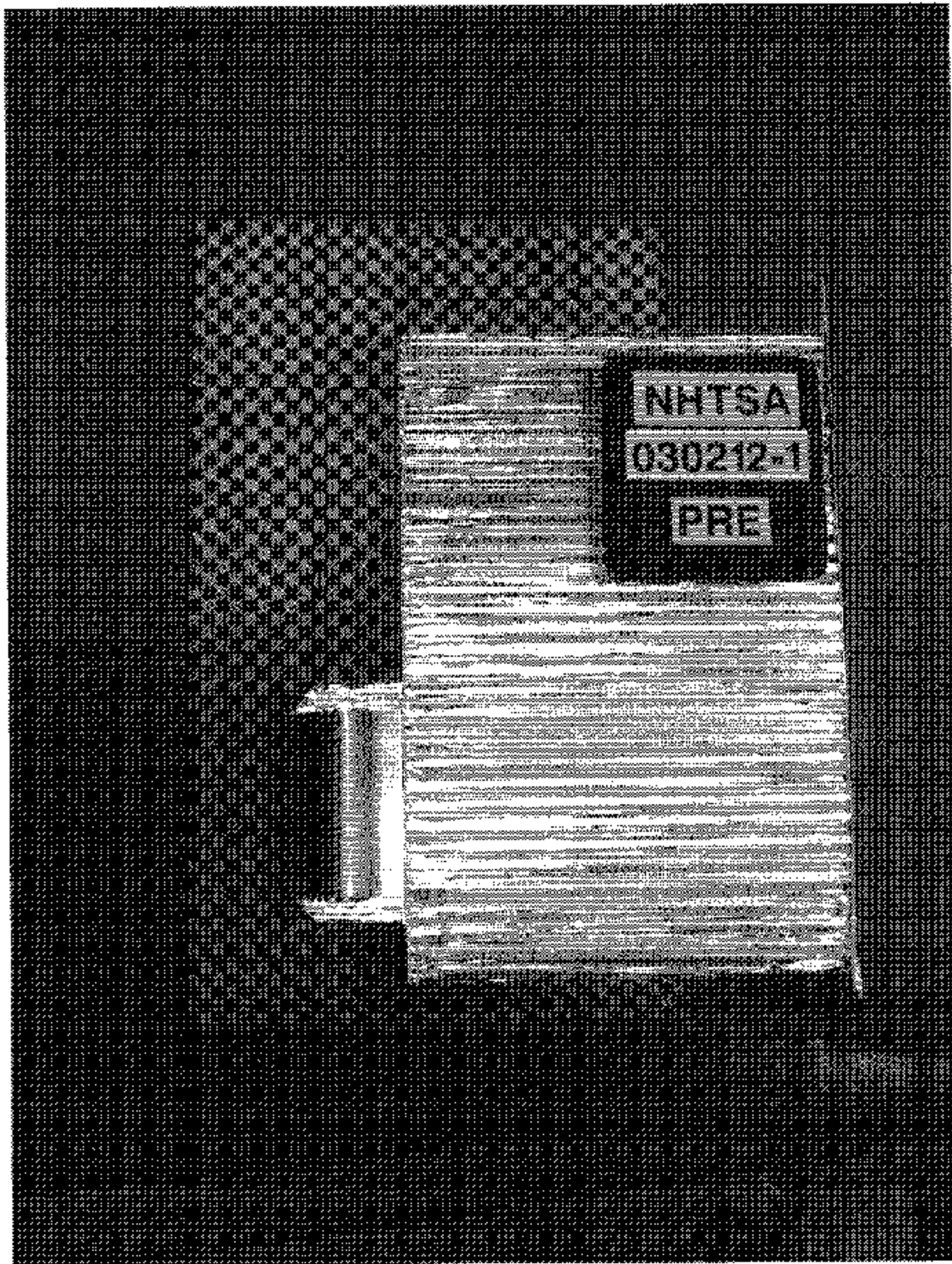


Figure A-9 Pre-Test Left Side View of Impactor Face

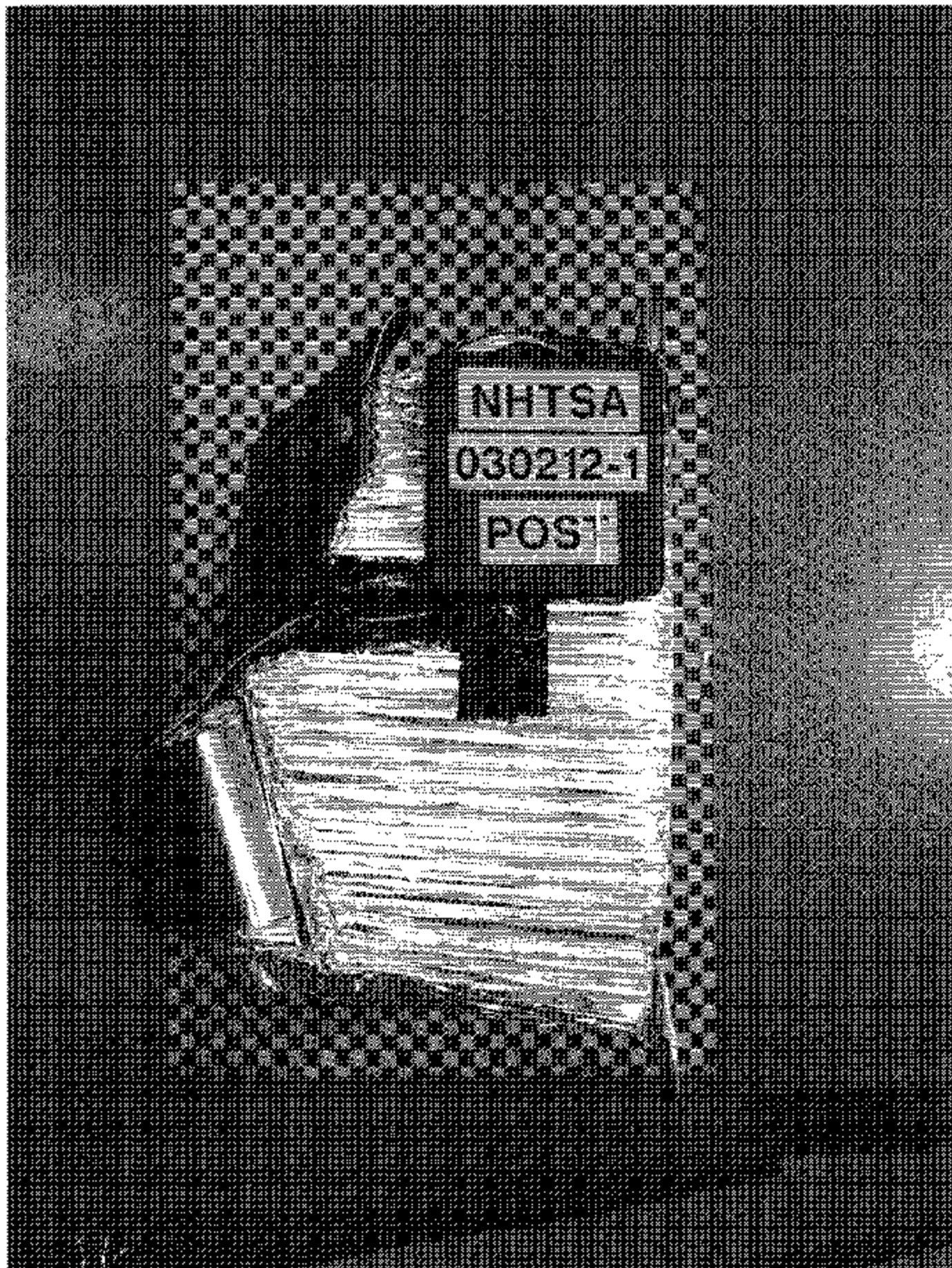


Figure A-10 Post-Test Left Side View of Impactor Face

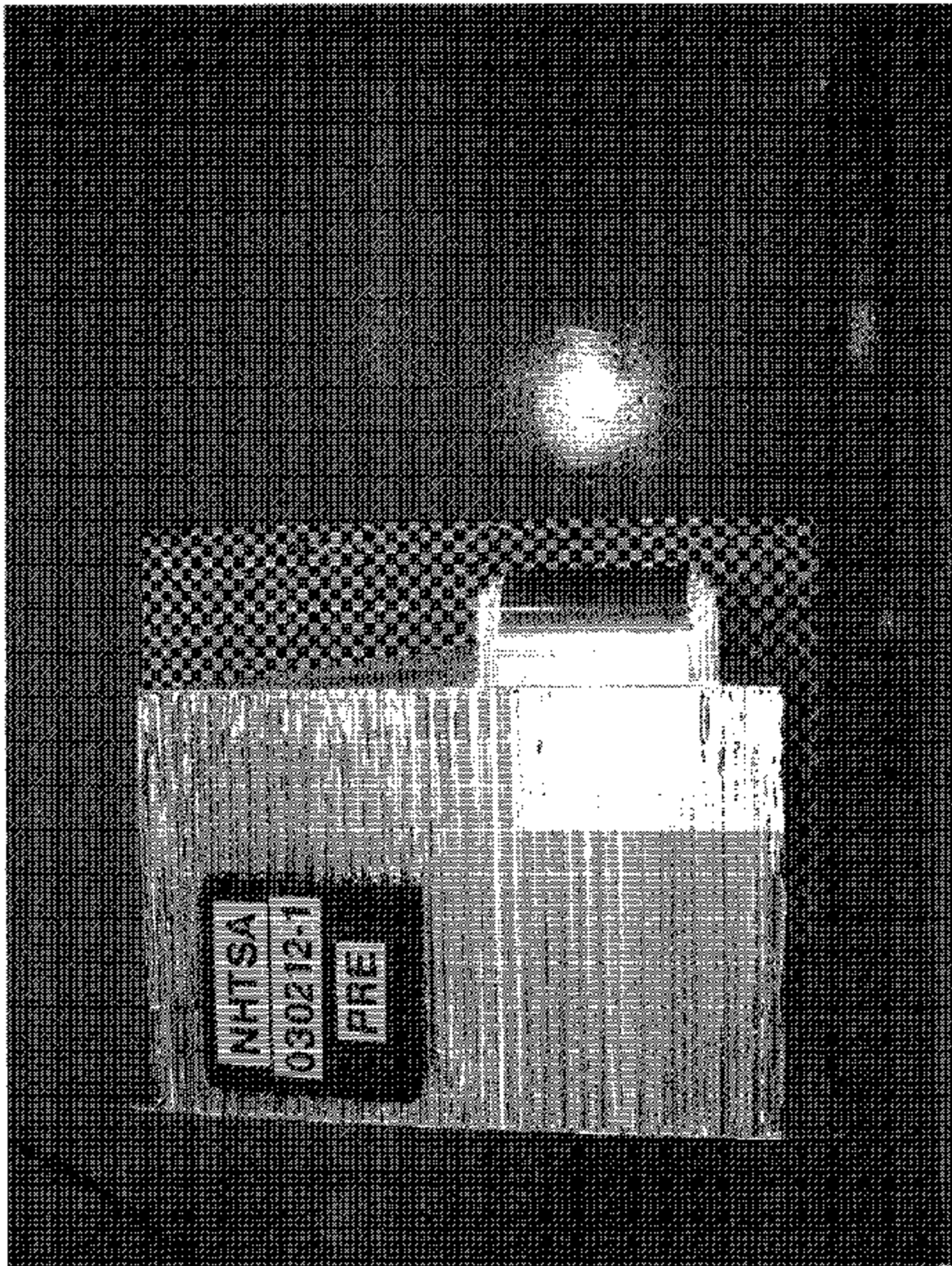


Figure A-11 Pre-Test Right Side View of Impactor Face

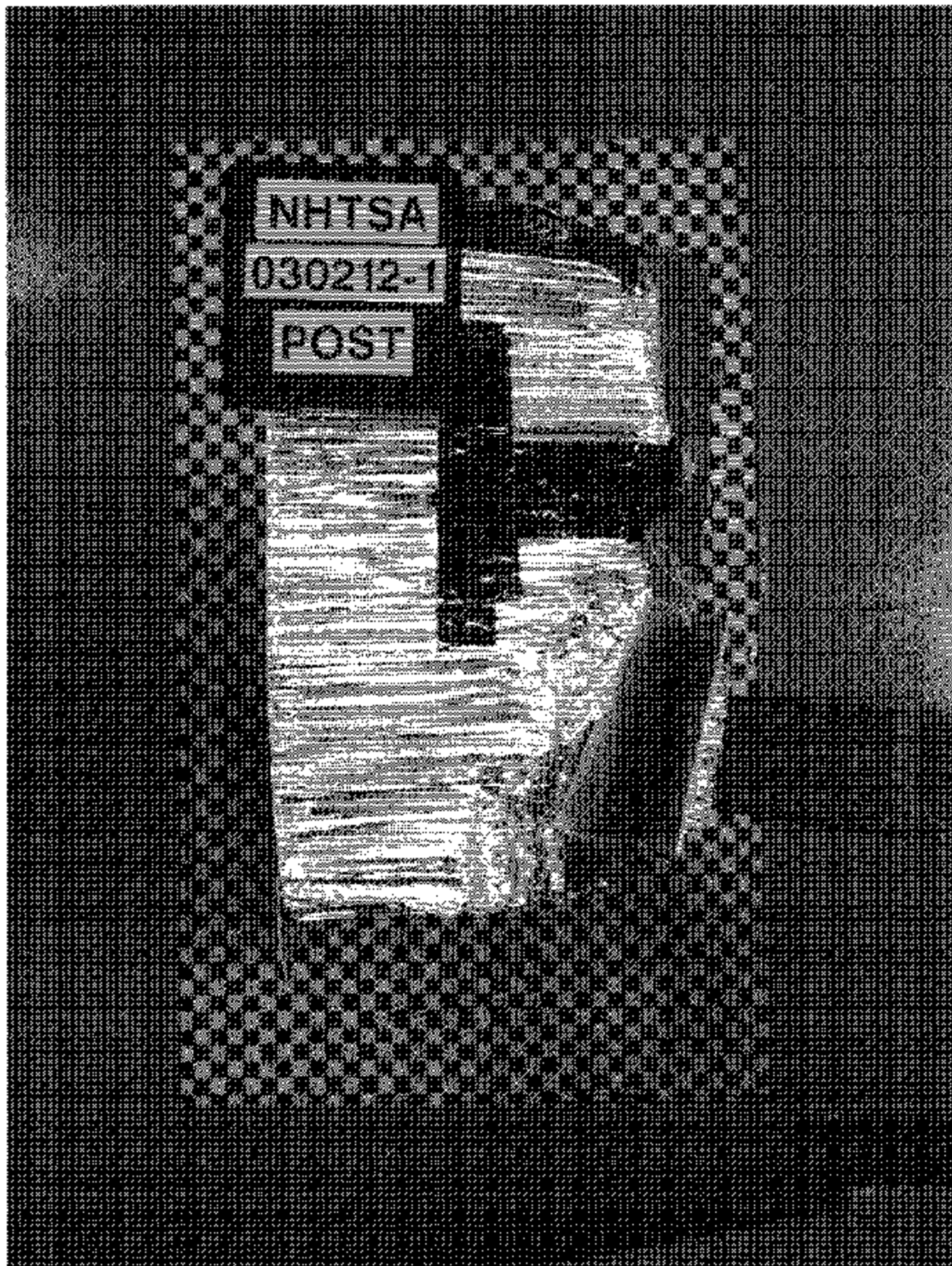


Figure A-12 Post-Test Right Side View of Impactor Face

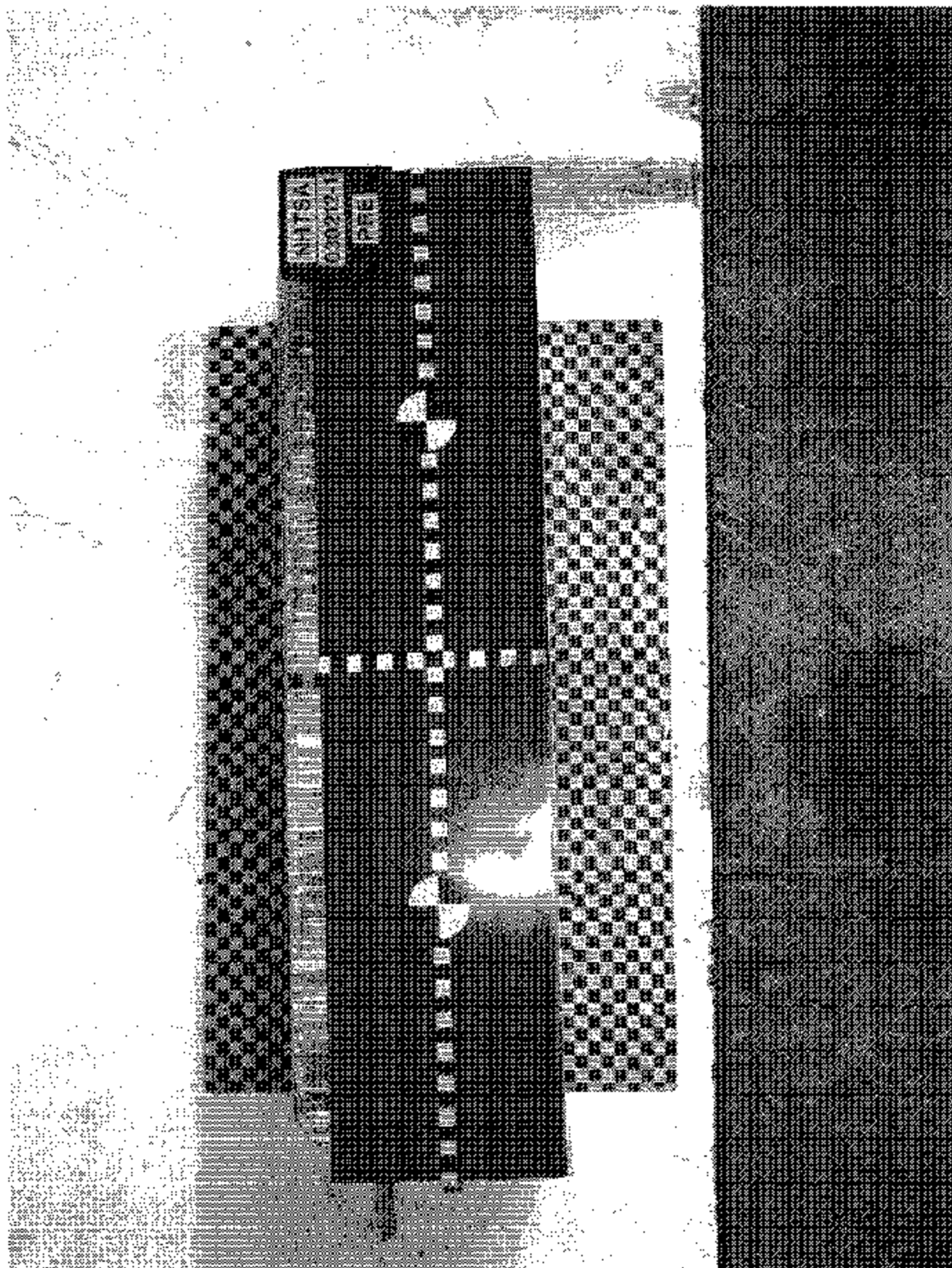


Figure A-13 Pre-Test Top View of Impactor Face

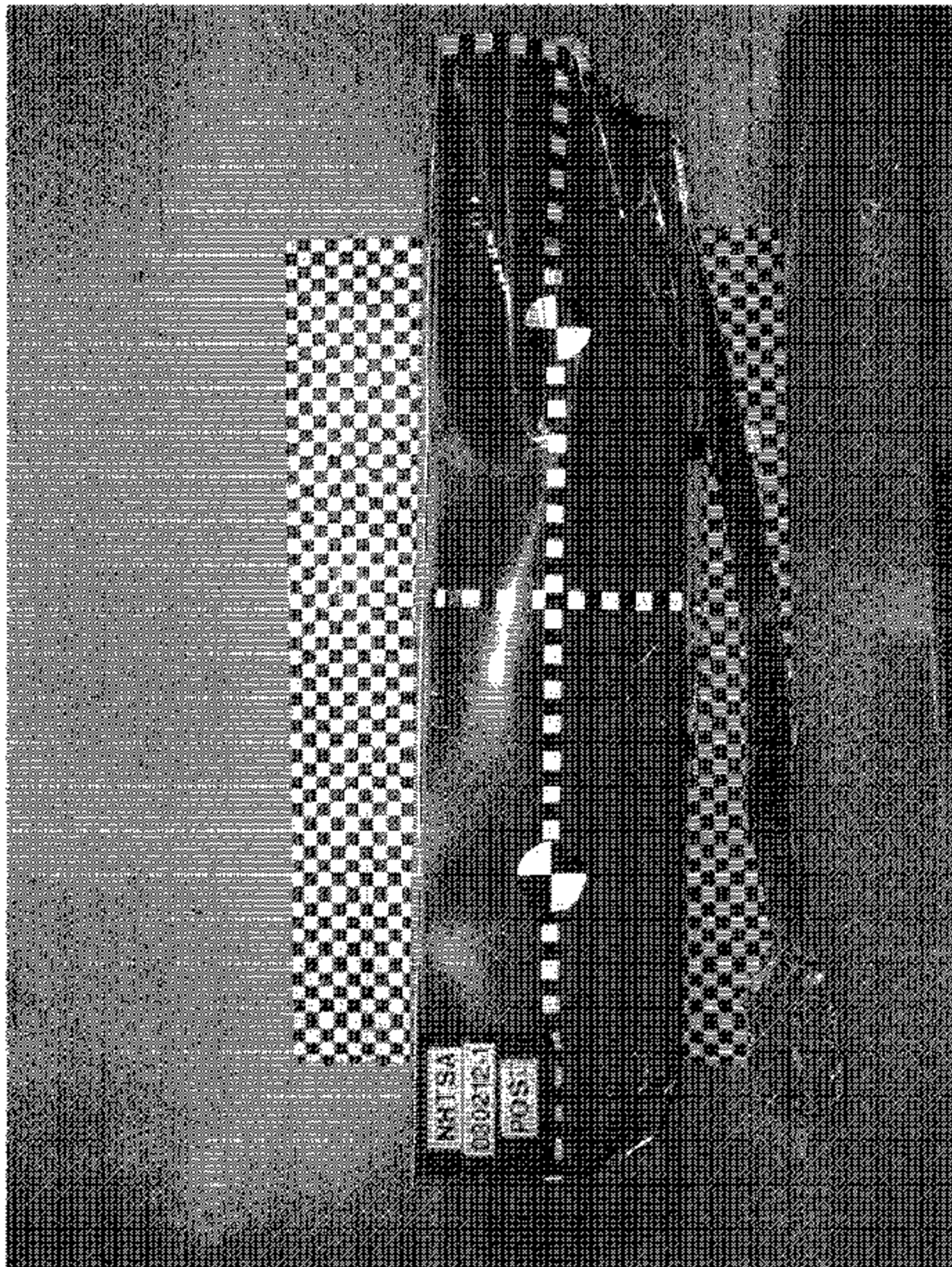


Figure A-14 Post-Test Top View of Impactor Face

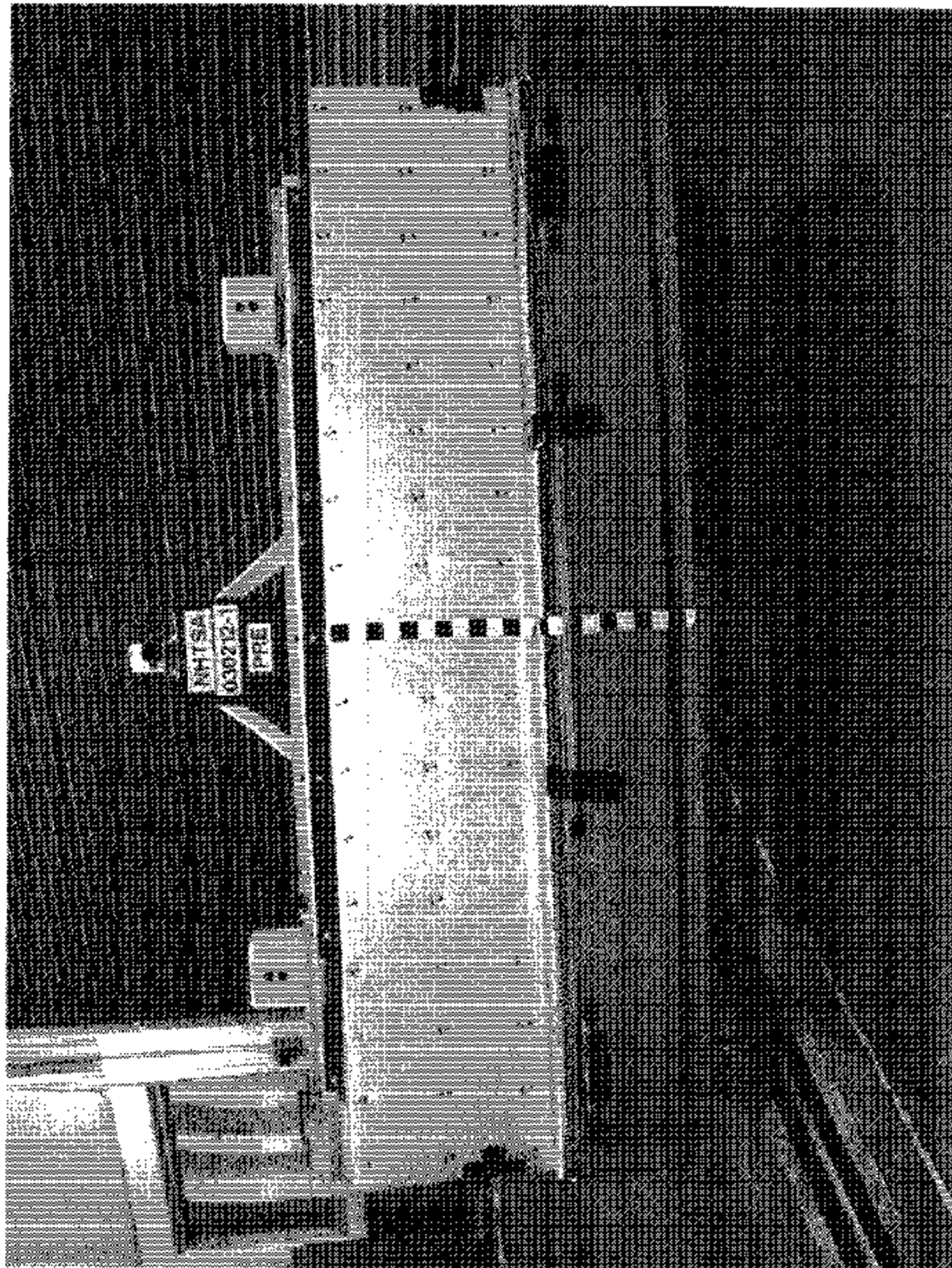


Figure A-15 Pre-Test View of MDB Showing Contact Switches in Place



Figure A-16 Pre-Test Overhead View of MDR Aligned with Vehicle



Figure A-17 Post-Test Overhead View of MDB and Vehicle

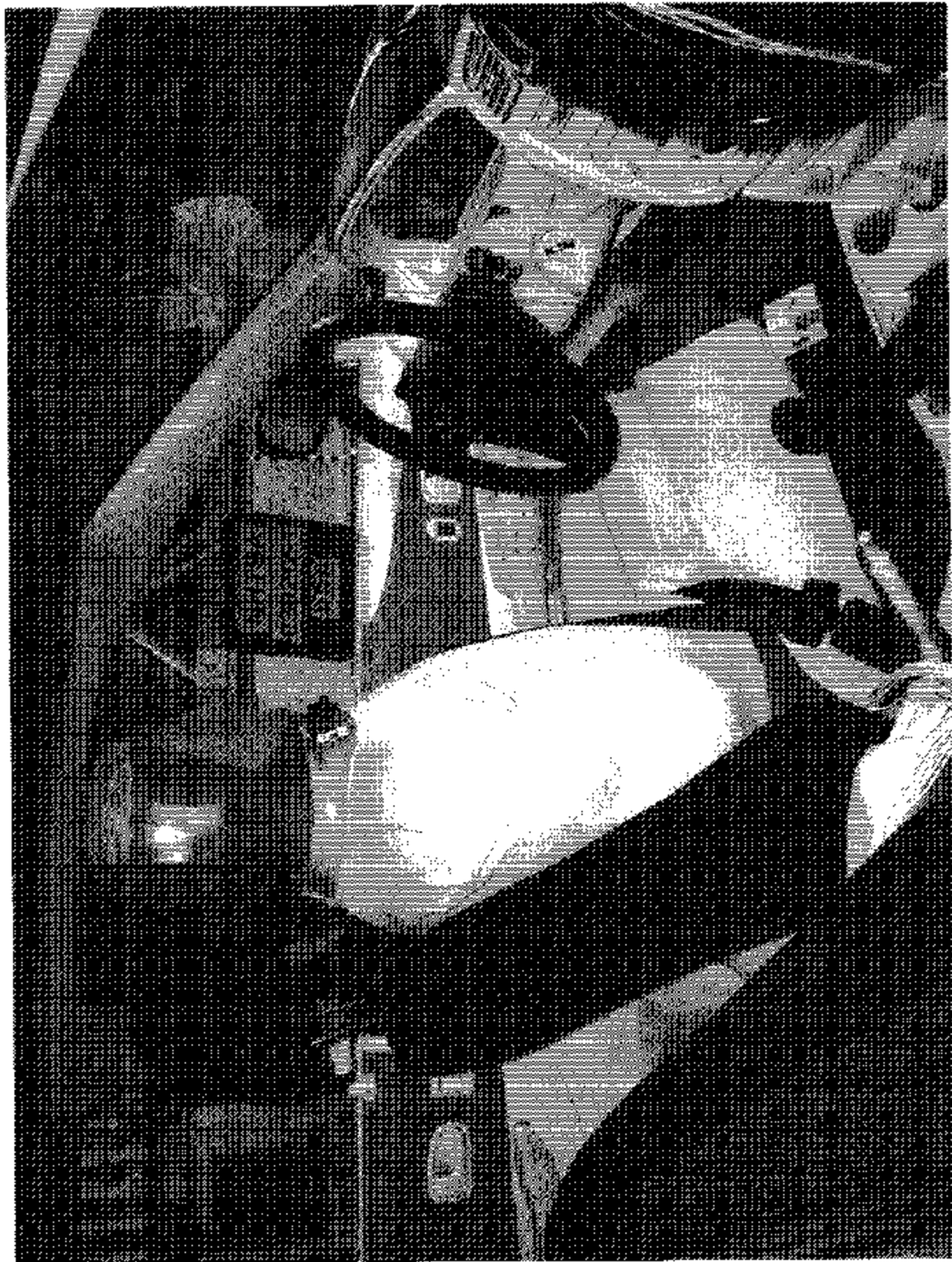


Figure A-18 Pre-Test Right Occupant Compartment View of Front SID



Figure A-19 Post-Test Right Occupant Compartment View of Front SID



Figure A-20 Pre-Test Right Occupant Compartment View of Rear SID

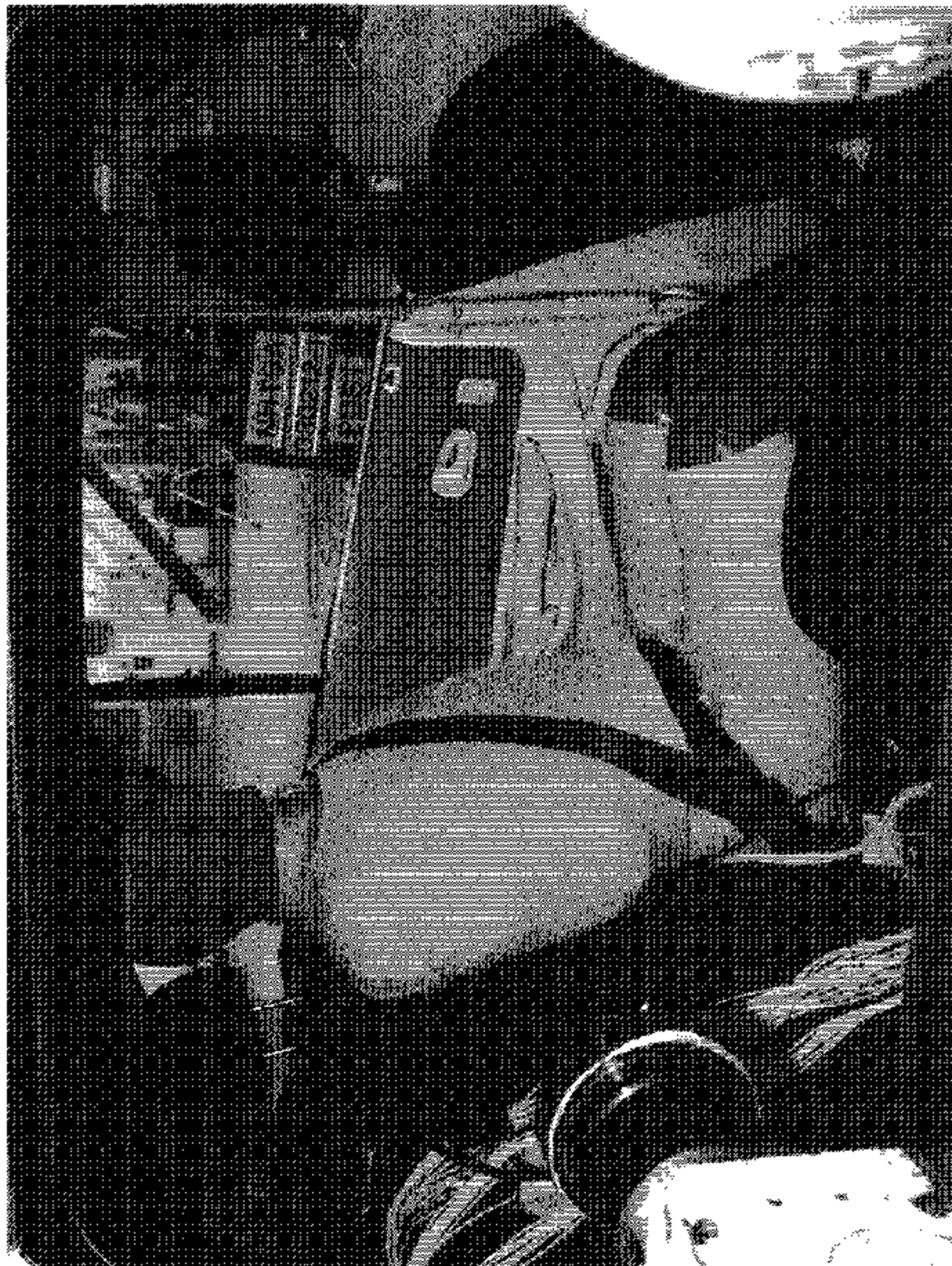


Figure A-21 Post-Test Right Occupant Compartment View of Rear SID

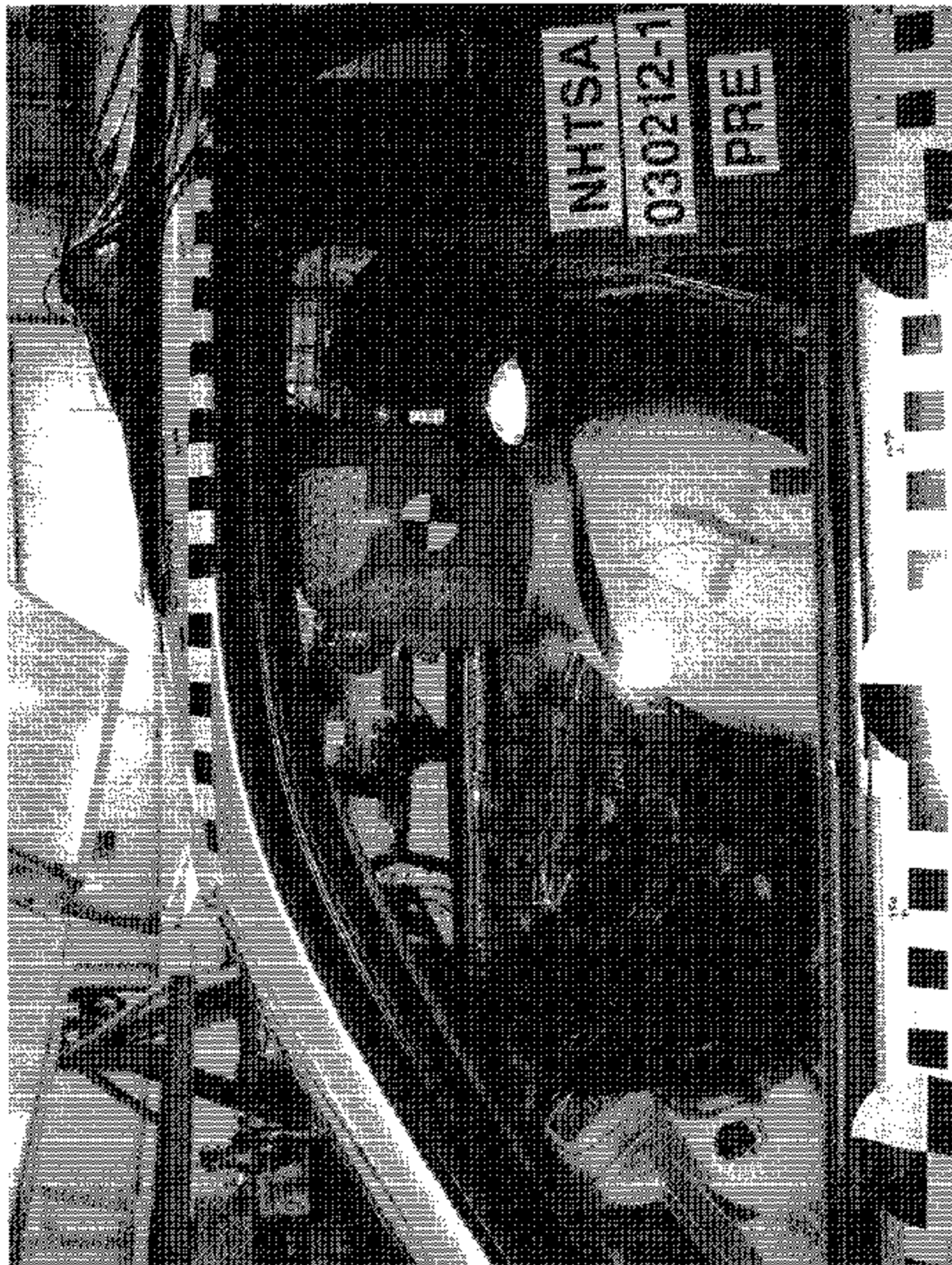


Figure A-22 Pre-Test Left View of Front SID

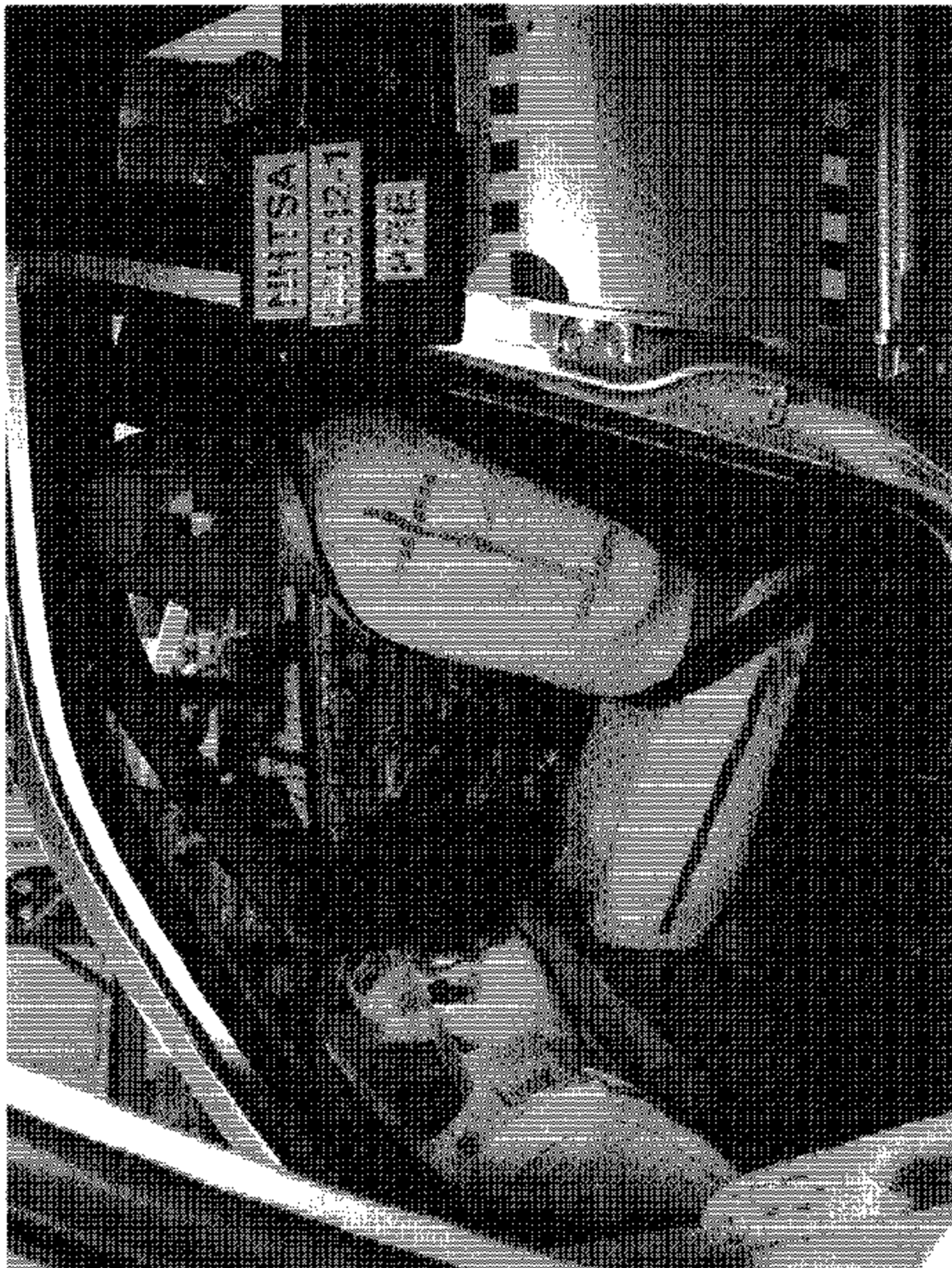


Figure A-23 Pre-Test Left View of Front SID and Belt Position

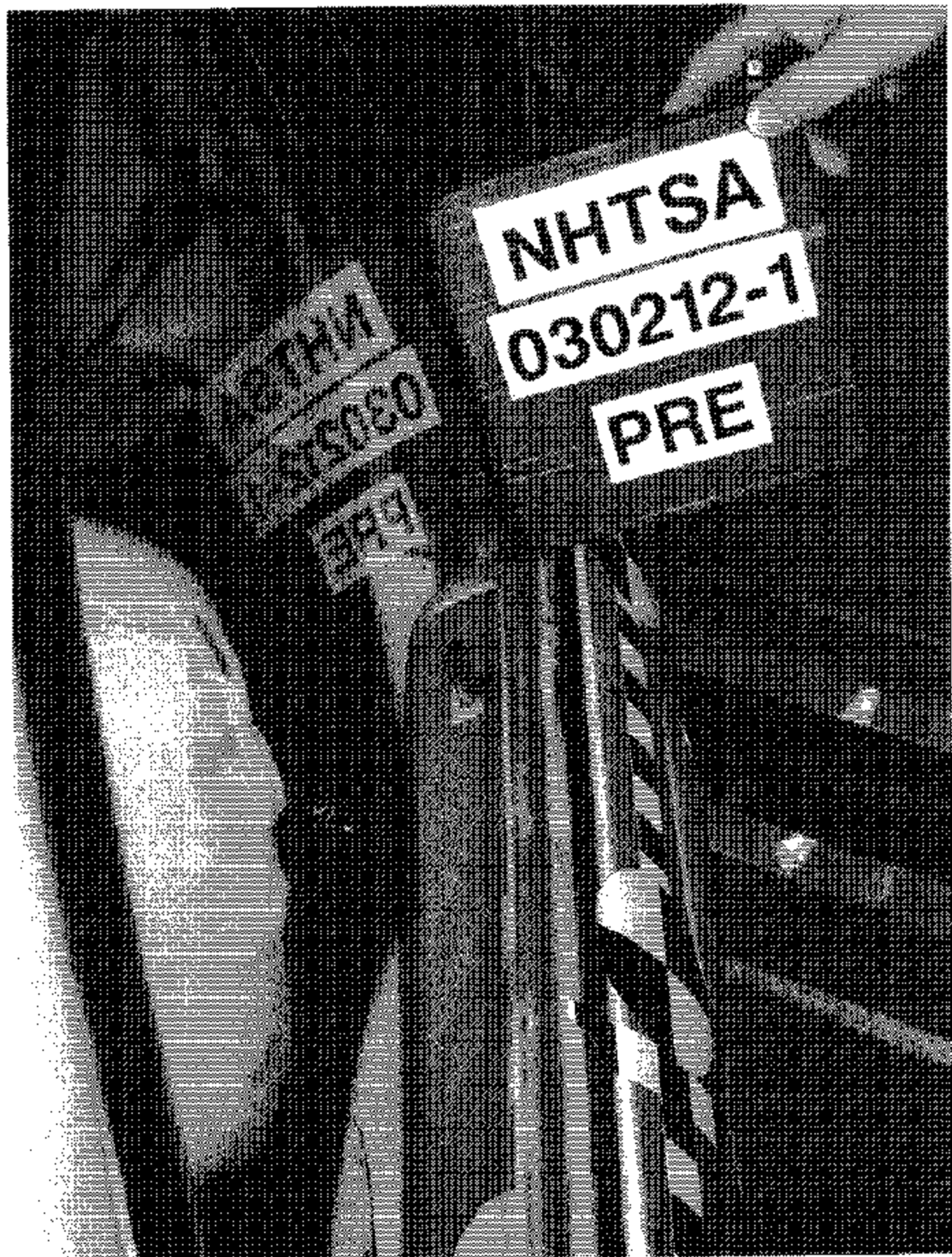


Figure A-24 Pre-Test Left View of Front SID and Door Clearance



Figure A-25 Post-Test Left View of Front SID and Door Clearance

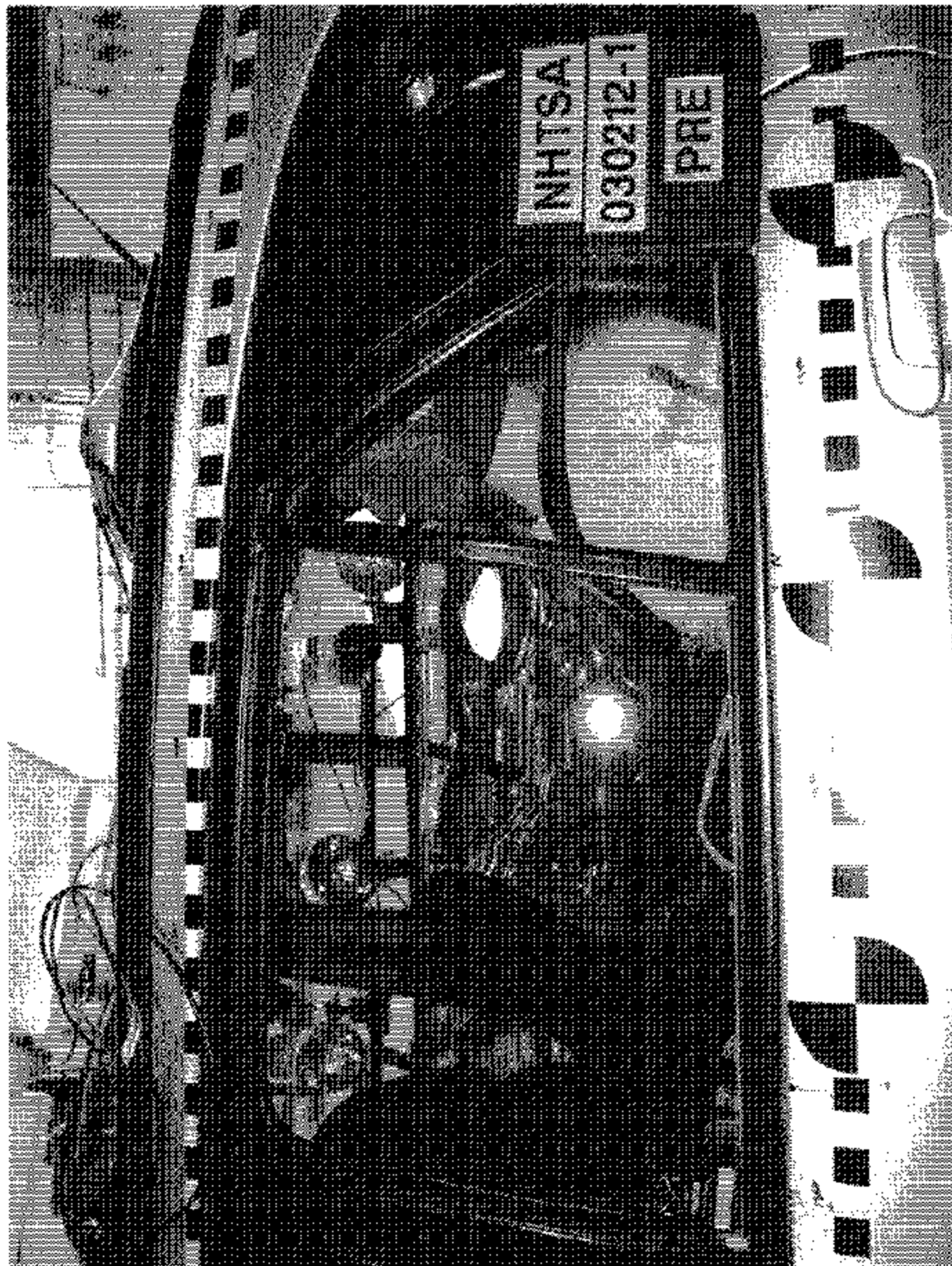


Figure A-26 Pre-Test Left View of Rear SID



Figure A-27 Pre-Test Left View of Rear SID and Belt Position

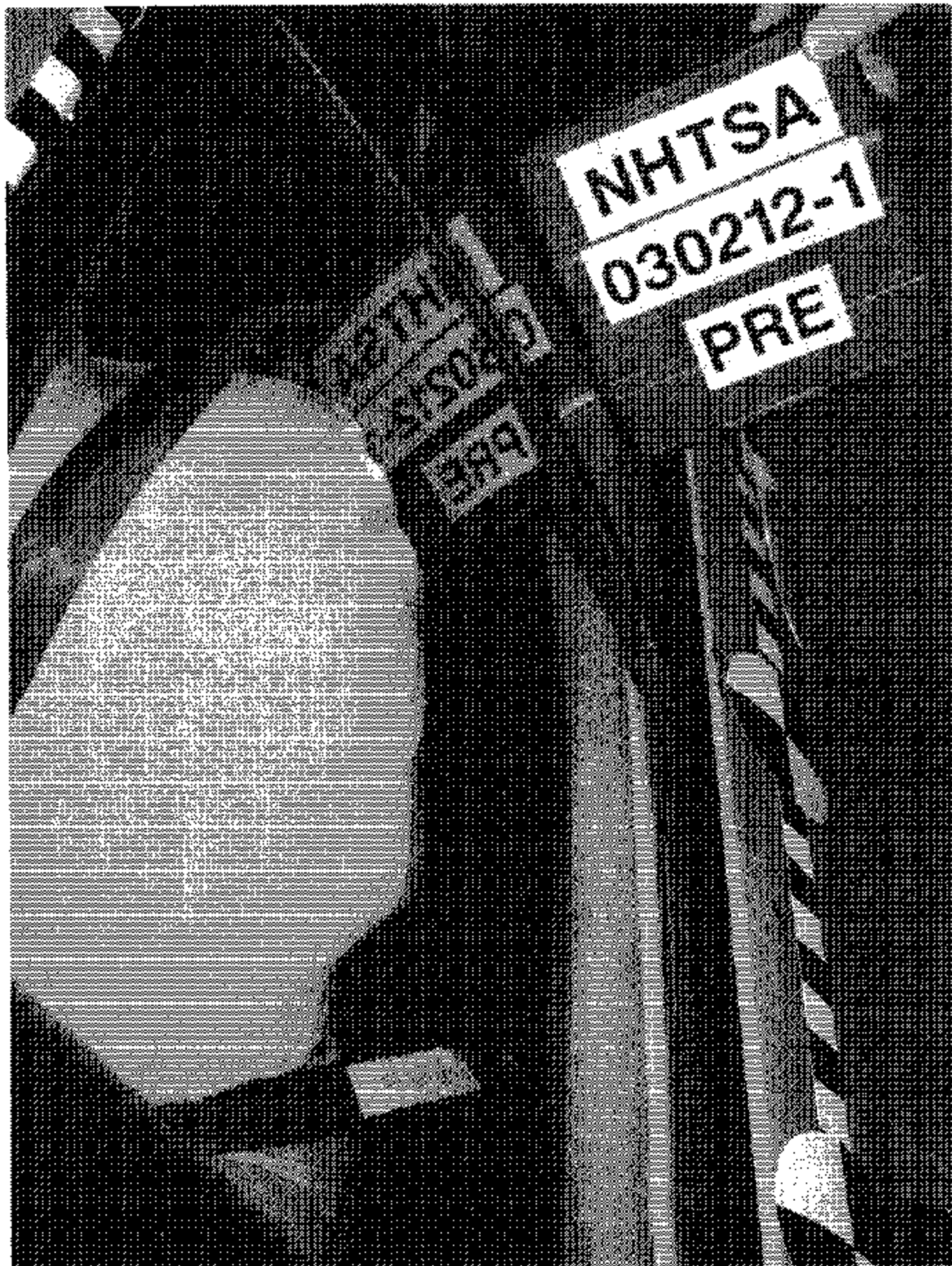


Figure A-28 Pre-Test Left View of Rear SID and Door Clearance



Figure A-29 Post-Test Left View of Rear SID and Door Clearance



Figure A-30 Pre-Test Interior of Front Door



Figure A-31 Post-Test Interior of Front Door Showing SID Impact Locations



Figure A-32 Post-Test Front STD Contact



Figure A-33 Pre-Test Interior of Rear Panel



Figure A-34 Post-Test Interior of Rear Panel Showing SID Impact Locations



Figure A-35 Post-Test Rear SID Contact - View 1



Figure A-36 Post-Test Rear SID Contact - View 2

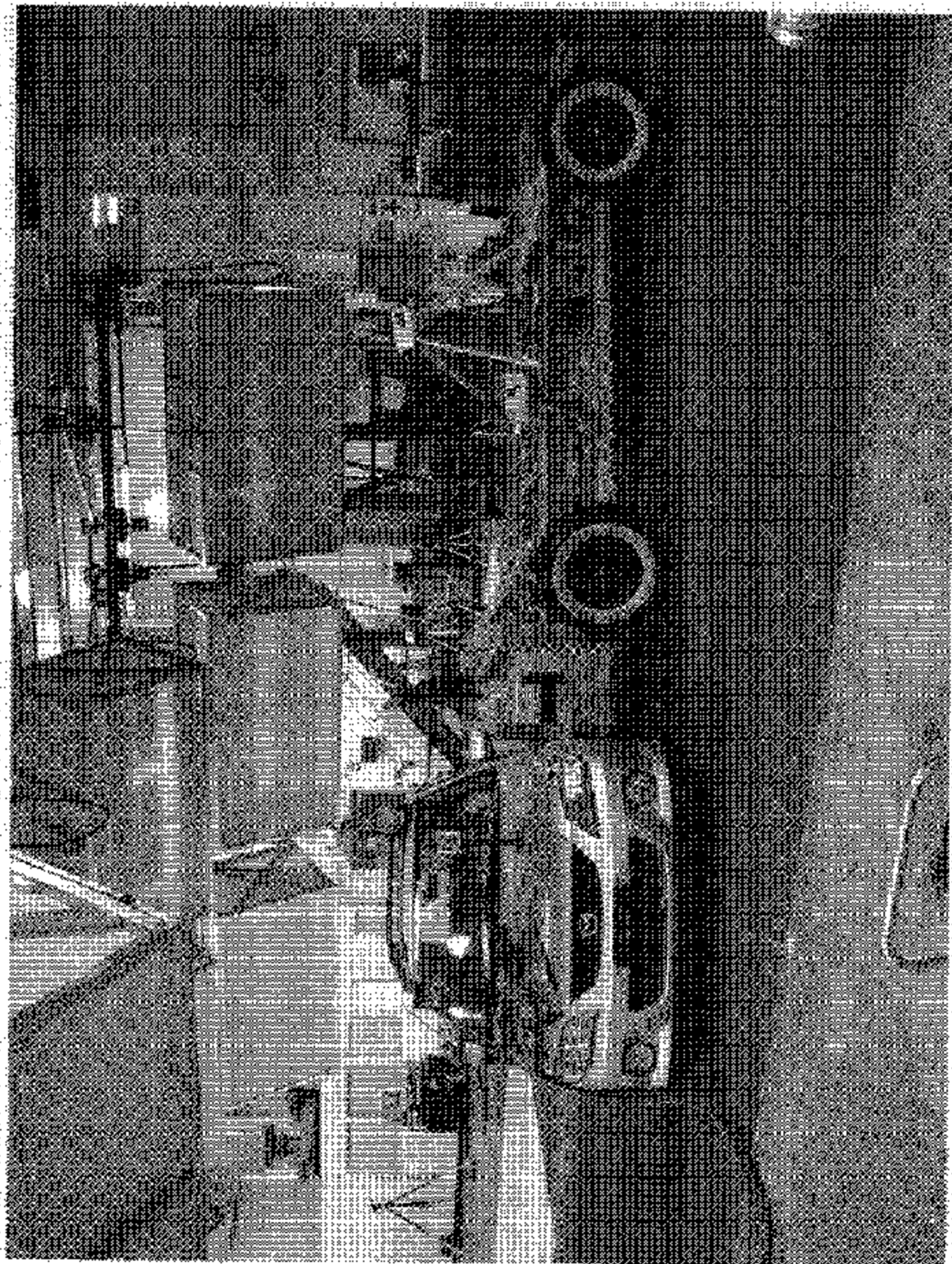


Figure A-37 Pre-Test Left Side View of MDB with Impactor Face in Position



Figure A-38 Pre-Test Primary Impact Point View



Figure A-39 Post-Test Primary Impact Point View

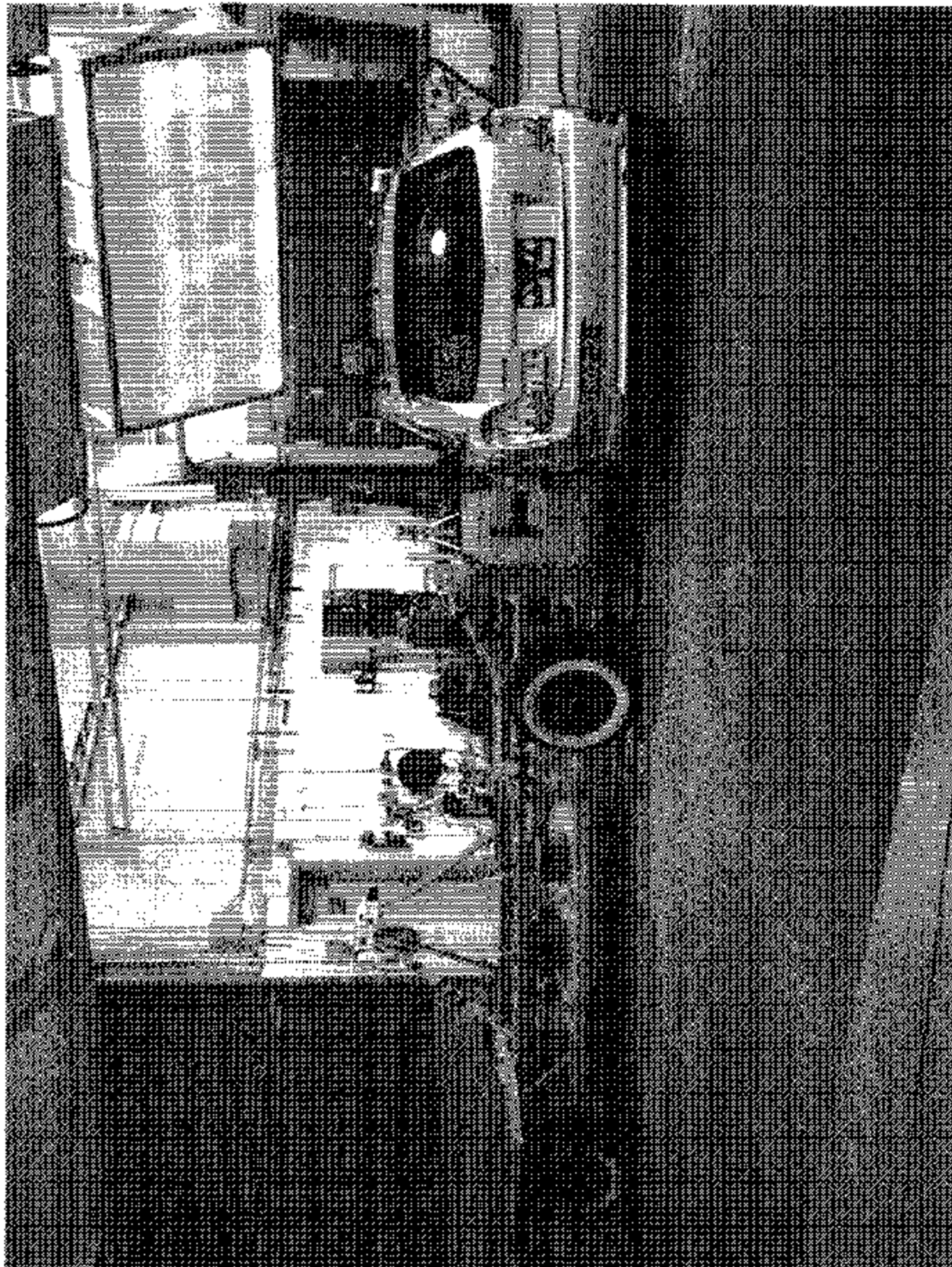


Figure A-40 Pre-Test Right Side View of MDB with Impactor Face in Position



Figure A-41 Pre-Test Secondary Impact Point View



Figure A-42 Post-Test Secondary Impact Point View

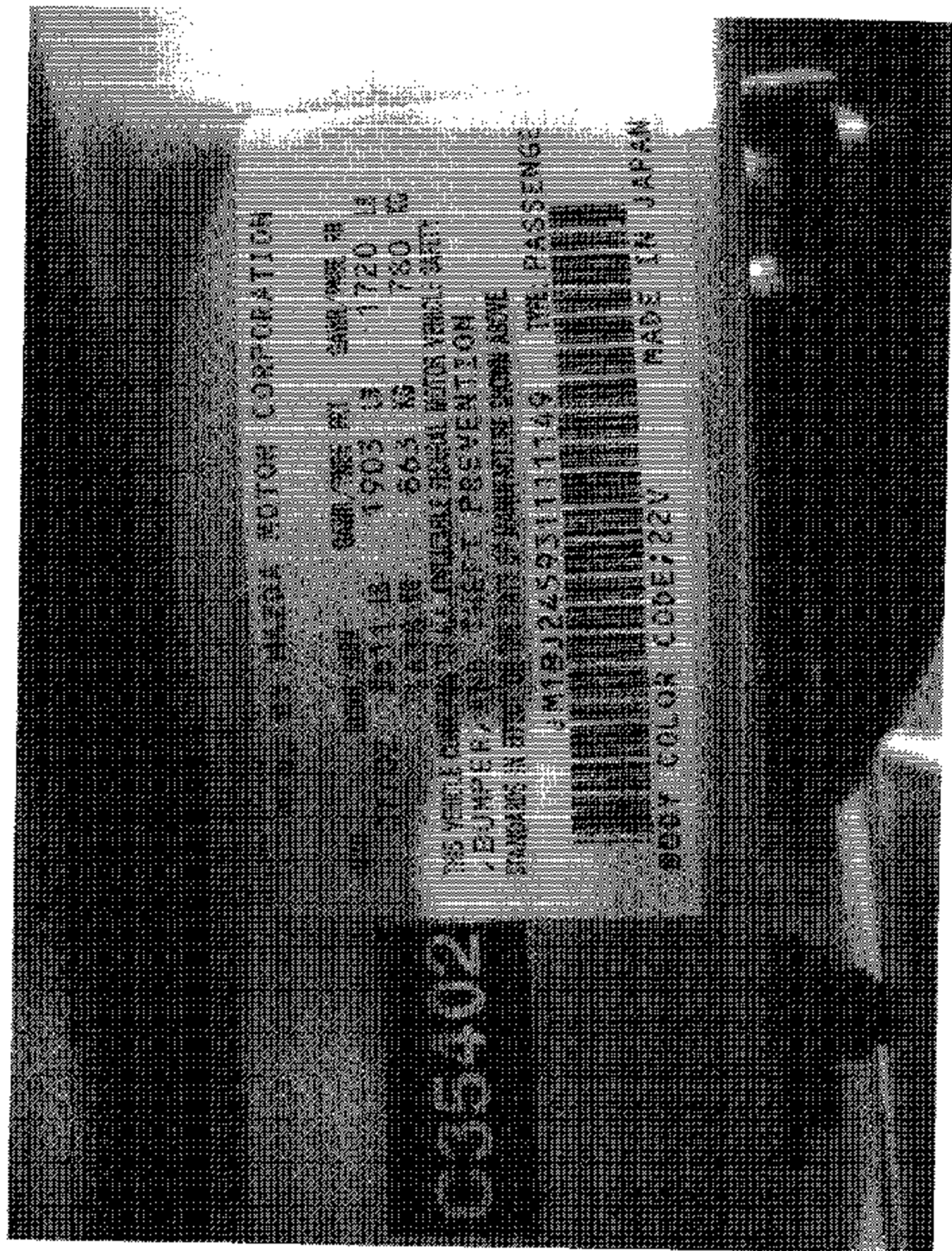


Figure A-43 Pre-Test Vehicle Certification Label View

VEHICLE CAPACITY WEIGHT CAPACITE PORTEUSE DU VEHICULE		FRONT SEAT SIÈGE AVANT	
SEATING CAPACITY NOMBRE DE PLACES		REAR SEAT SIÈGE ARRIÈRE	
		TOTAL	
		FRONT/AV	REAR/AR
		220	220
		(2.2)(32)(2.2)(32)	(2.2)(32)(2.2)(32)
		P195/50R16 83V	
		PNEUS	
		TAILLE DES PNEUS	

Figure A-44 Pre-Test Vehicle Recommended Tire Pressure Label View

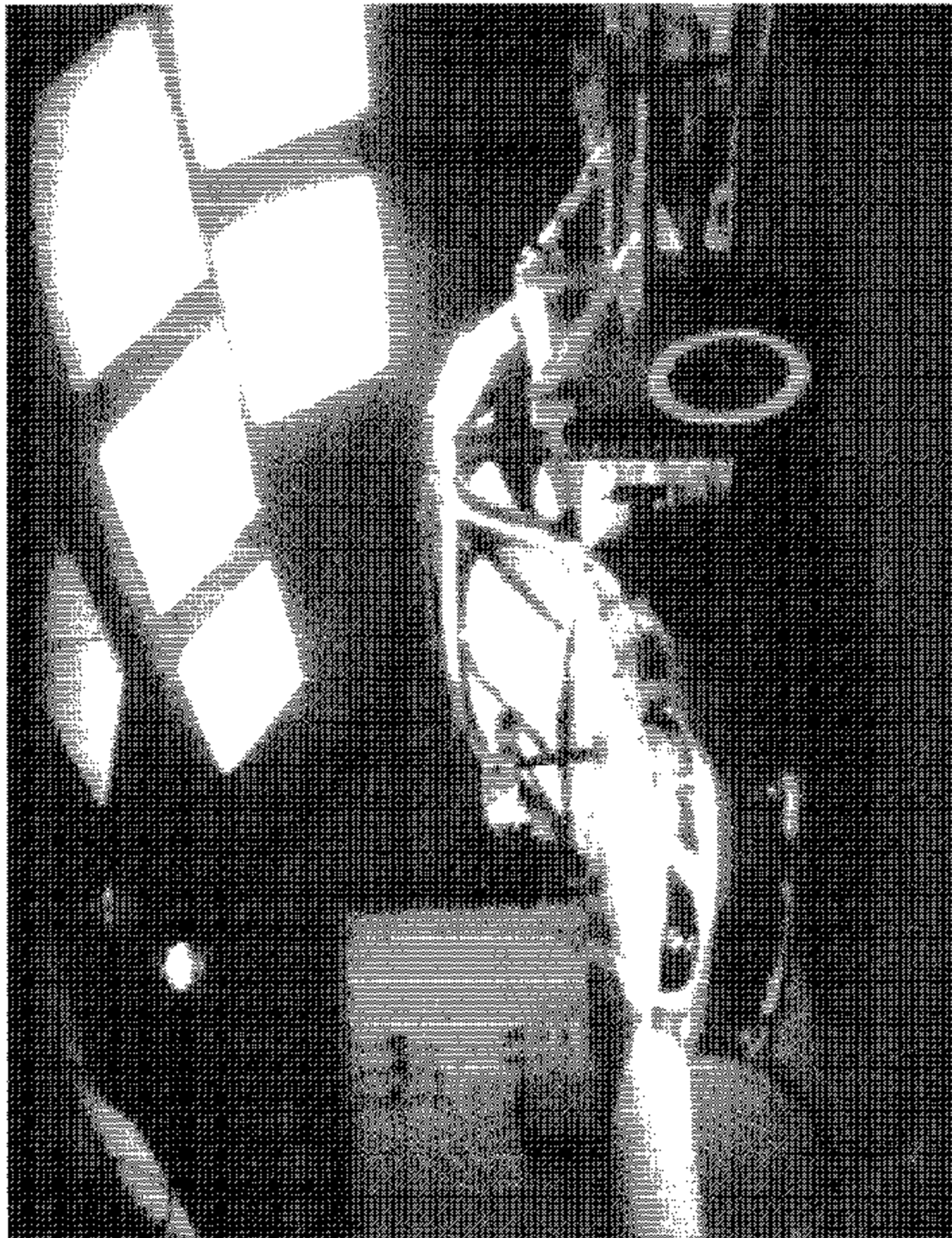


Figure A-45 Impact Event



Figure A-46 Pre-Test Fuel Cap



Figure A-47 Post-Test Fuel Cap



Figure A-48 FMVSS 301 Rollover View at 90°



Figure A-49 FMVSS 301 Rollover View at 180°

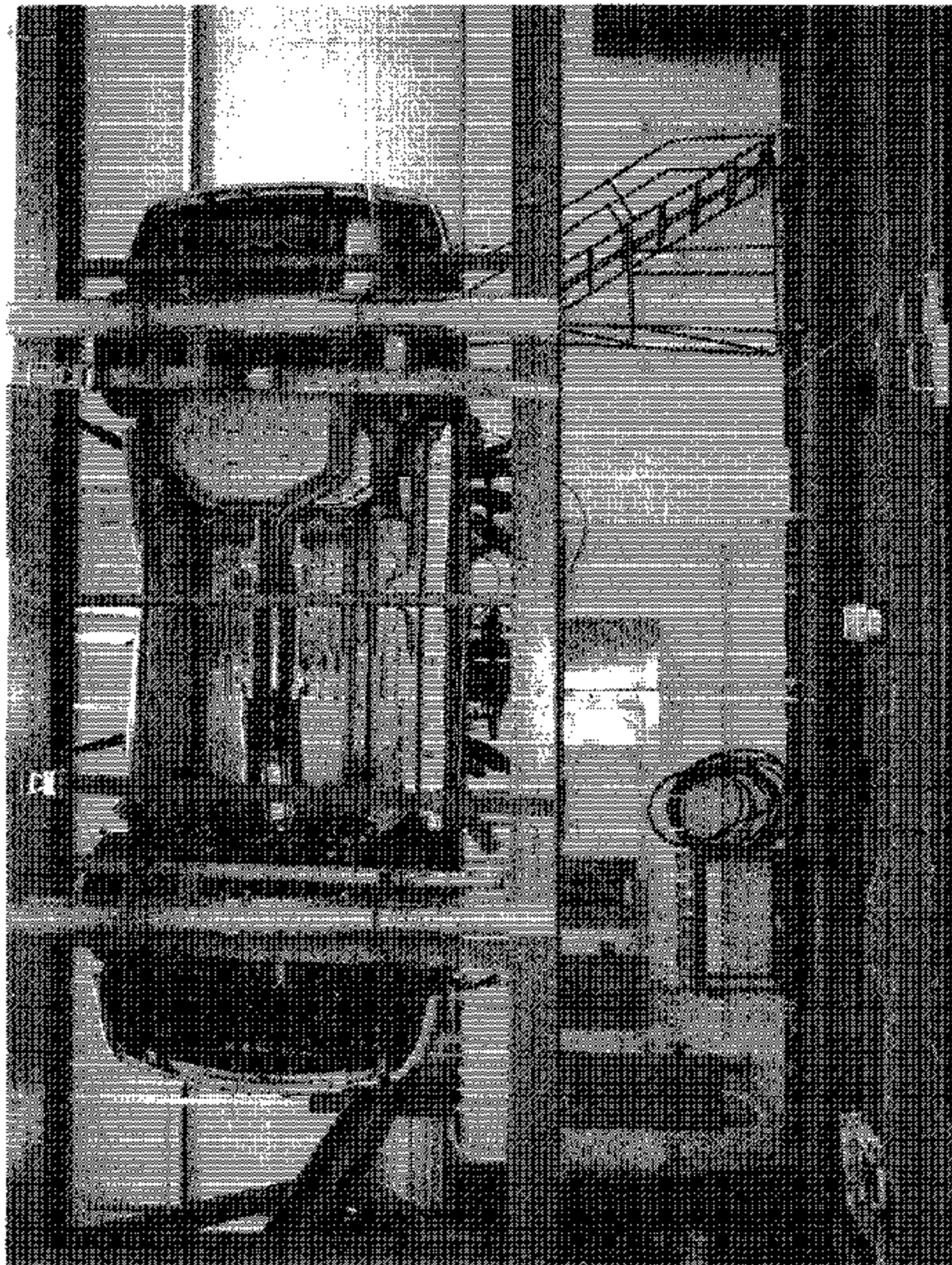


Figure A-50 FMVSS 301 Rollover View at 270°

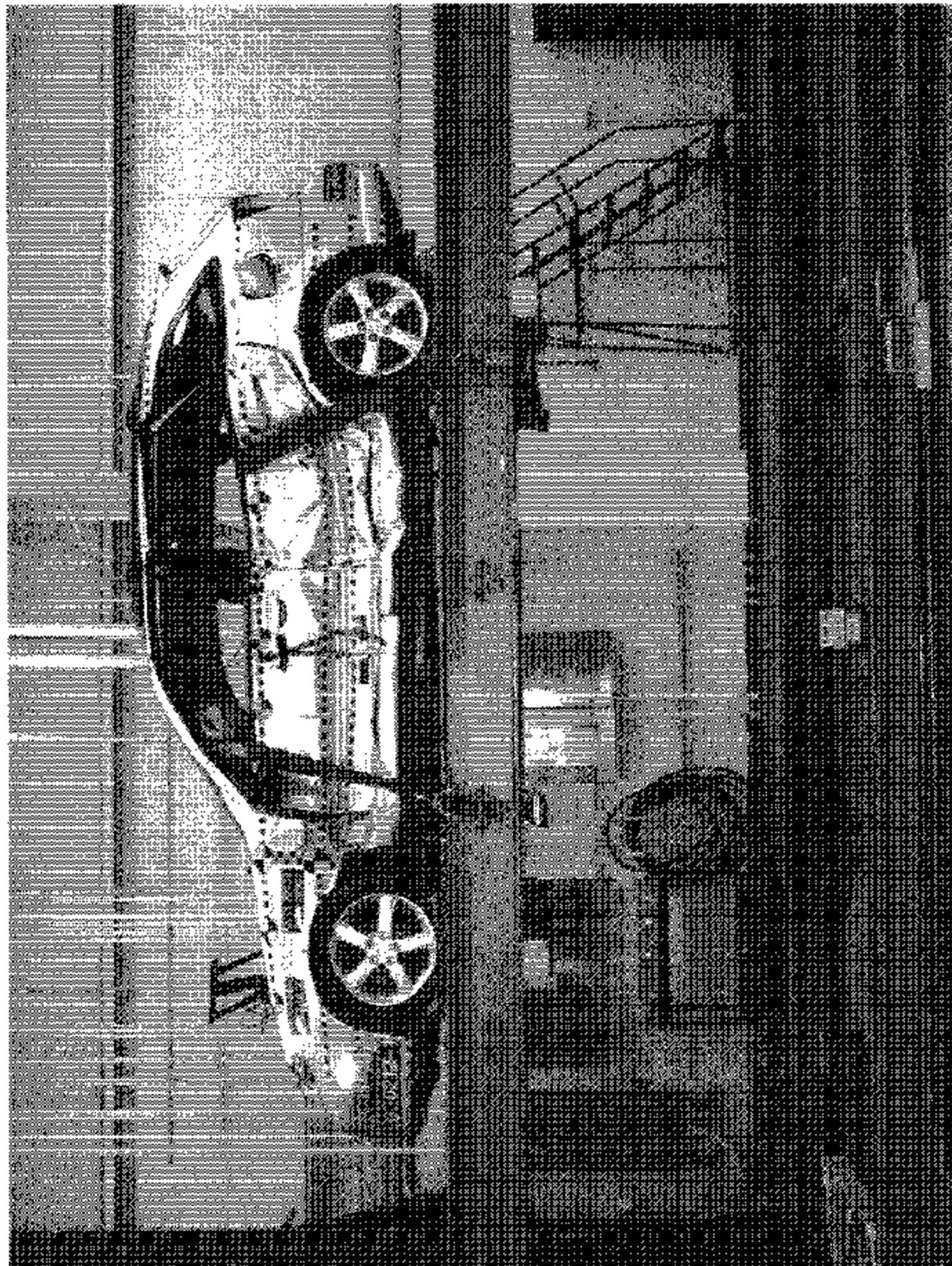


Figure A-51 FMVSS 301 Rollover View at 360°

Appendix B

Data Plots

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Driver and Passenger Dummy Instrumentation Plots
 Acceleration Data - Filter Class 1000
 Integration Data - Filter Class 180

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3	Driver Lower Rib Y-Axis Acceleration	B-11
4	Driver Lower Rib Y-Axis Velocity	B-12
5	Driver Lower Spine Y-Axis Acceleration	B-13
6	Driver Lower Spine Y-Axis Velocity	B-14
7	Driver Pelvis Y-Axis Acceleration	B-15
8	Driver Pelvis Y-Axis Velocity	B-16
9	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-17
10	Left Rear Passenger Upper Rib Y-Axis Velocity	B-18
11	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-19
12	Left Rear Passenger Lower Rib Y-Axis Velocity	B-20
13	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-21
14	Left Rear Passenger Lower Spine Y-Axis Velocity	B-22
15	Left Rear Passenger Pelvis Y-Axis Acceleration	B-23
16	Left Rear Passenger Pelvis Y-Axis Velocity	B-24

Driver and Passenger Dummy Instrumentation Plots
 Acceleration Data - Filter Class 1000 - Redundant
 Integration Data - Filter Class 180 - Redundant

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23	Driver Pelvis Y-Axis Redundant Acceleration	B-32

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Integration Data - Filter Class 180 - Redundant

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31	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-40
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Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

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48	Rear Floorpan Above Axle X-Axis Velocity	B-58

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 Test Vehicle Instrumentation Plots (Continued)
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 Integration Data - Filter Class 180

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71	Left Front Door Upper Centerline Y-Axis Displacement	B-81
72	Mid-Rear of Left Rear Door Y-Axis Acceleration	B-82
73	Mid-Rear of Left Rear Door Y-Axis Velocity	B-83
74	Mid-Rear of Left Rear Door Y-Axis Displacement	B-84
75	Left Rear Door Upper Centerline Y-Axis Acceleration	B-85
76	Left Rear Door Upper Centerline Y-Axis Velocity	B-86

Table of Data Plots (Continued)
Test Vehicle Instrumentation Plots (Continued)
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
77	Left Rear Door Upper Centerline Y-Axis Displacement	B-87
78	Left Lower A-Post Y-Axis Acceleration	B-88
79	Left Lower A-Post Y-Axis Velocity	B-89
80	Left Middle A-Post Y-Axis Acceleration	B-90
81	Left Middle A-Post Y-Axis Velocity	B-91
82	Left Lower B-Post Y-Axis Acceleration	B-92
83	Left Lower B-Post Y-Axis Velocity	B-93
84	Left Middle B-Post Y-Axis Acceleration	B-94
85	Left Middle B-Post Y-Axis Velocity	B-95
86	Left Front Seat Track Y-Axis Acceleration	B-96
87	Left Front Seat Track Y-Axis Velocity	B-97
88	Left Rear Seat Track Y-Axis Acceleration	B-98
89	Left Rear Seat Track Y-Axis Velocity	B-99
90	Vehicle Center Of Gravity X-Axis Acceleration	B-100
91	Vehicle Center Of Gravity X-Axis Velocity	B-101
92	Vehicle Center Of Gravity Y-Axis Acceleration	B-102
93	Vehicle Center Of Gravity Y-Axis Velocity	B-103
94	Vehicle Center Of Gravity Z-Axis Acceleration	B-104
95	Vehicle Center Of Gravity Z-Axis Velocity	B-105
96	Vehicle Center Of Gravity Resultant Acceleration	B-106

MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
97	MDB Center Of Gravity X-Axis Acceleration	B-108
98	MDB Center Of Gravity X-Axis Velocity	B-109
99	MDB Center Of Gravity Y-Axis Acceleration	B-110
100	MDB Center Of Gravity Y-Axis Velocity	B-111

Table of Data Plots (Continued)
 MDB Instrumentation Plots (Continued)
 Acceleration Data - Filter Class 60
 Integration Data - Filter Class 180

101	MDB Center Of Gravity Z-Axis Acceleration	B-112
102	MDB Center Of Gravity Z-Axis Velocity	B-113
103	MDB Center Of Gravity Resultant Acceleration	B-114
104	MDB Left Rear X-Axis Acceleration	B-115
105	MDB Left Rear X-Axis Velocity	B-116
106	MDB Left Rear Y-Axis Acceleration	B-117
107	MDB Left Rear Y-Axis Velocity	B-118
108	MDB Right Side Contact Switch	B-119
109	MDB Left Side Contact Switch	B-120

Driver and Passenger Dummy Instrumentation Plots
 Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
110	Driver Upper Rib Y-Axis Acceleration	B-122
111	Driver Lower Rib Y-Axis Acceleration	B-123
112	Driver Lower Spine Y-Axis Acceleration	B-124
113	Driver Pelvis Y-Axis Acceleration	B-125
114	Passenger Upper Rib Y-Axis Acceleration	B-126
115	Passenger Lower Rib Y-Axis Acceleration	B-127
116	Passenger Lower Spine Y-Axis Acceleration	B-128
117	Passenger Pelvis Y-Axis Acceleration	B-129

Table of Data Plots (Continued)
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
118	Driver Upper Rib Y-Axis Redundant Acceleration	B-131
119	Driver Lower Rib Y-Axis Redundant Acceleration	B-132
120	Driver Lower Spine Y-Axis Redundant Acceleration	B-133
121	Driver Pelvis Y-Axis Redundant Acceleration	B-134
122	Passenger Upper Rib Y-Axis Redundant Acceleration	B-135
123	Passenger Lower Rib Y-Axis Redundant Acceleration	B-136
124	Passenger Lower Spine Y-Axis Redundant Acceleration	B-137
125	Passenger Pelvis Y-Axis Redundant Acceleration	B-138

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

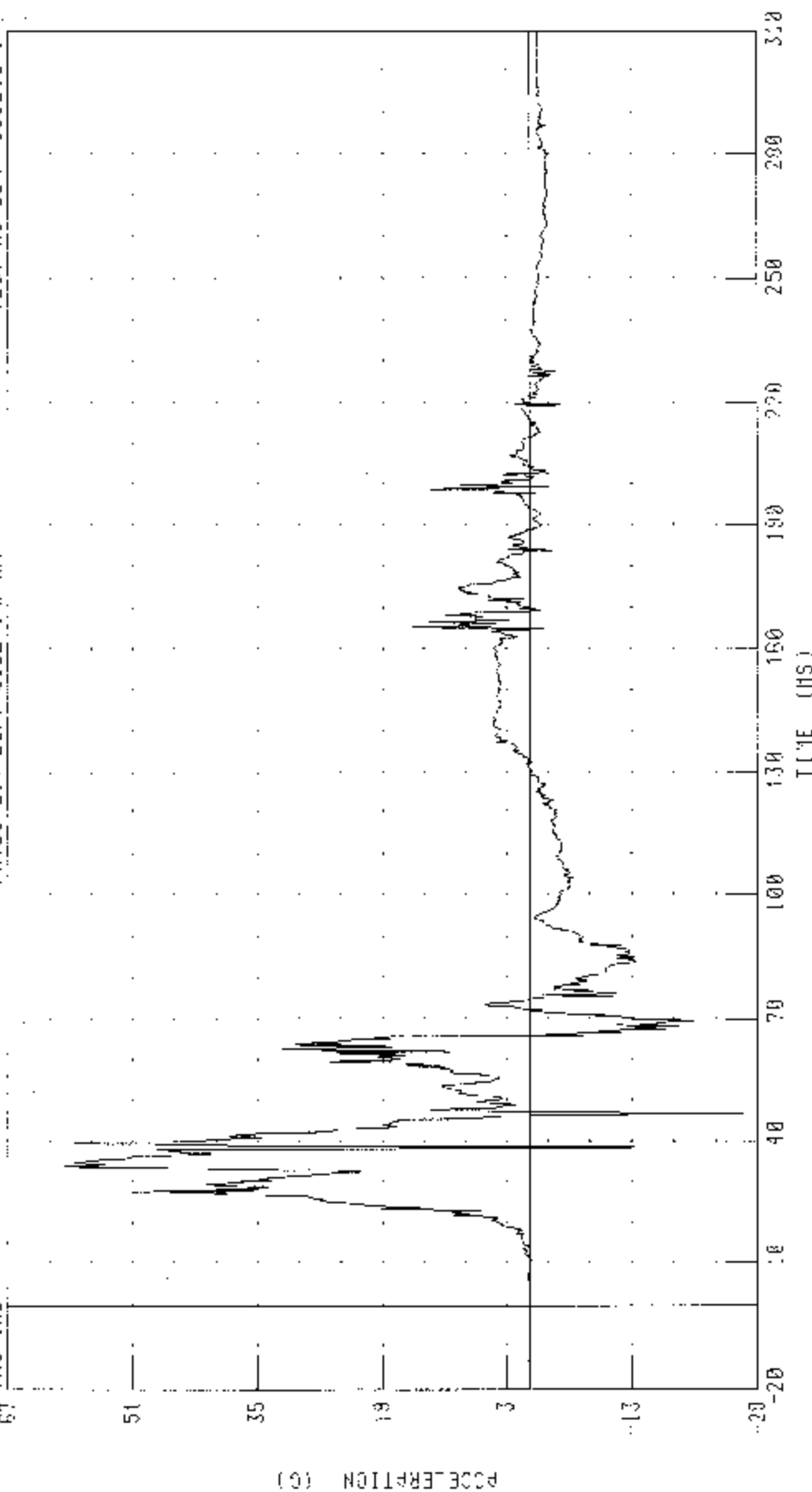
48/24 APT 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NORTON PROTEGE 5

DRIVER UPPER RIB Y-AXIS ACCELERATION

IRC INC

ENVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: SURYGE FILTER: CHL CLPSS: 0.000

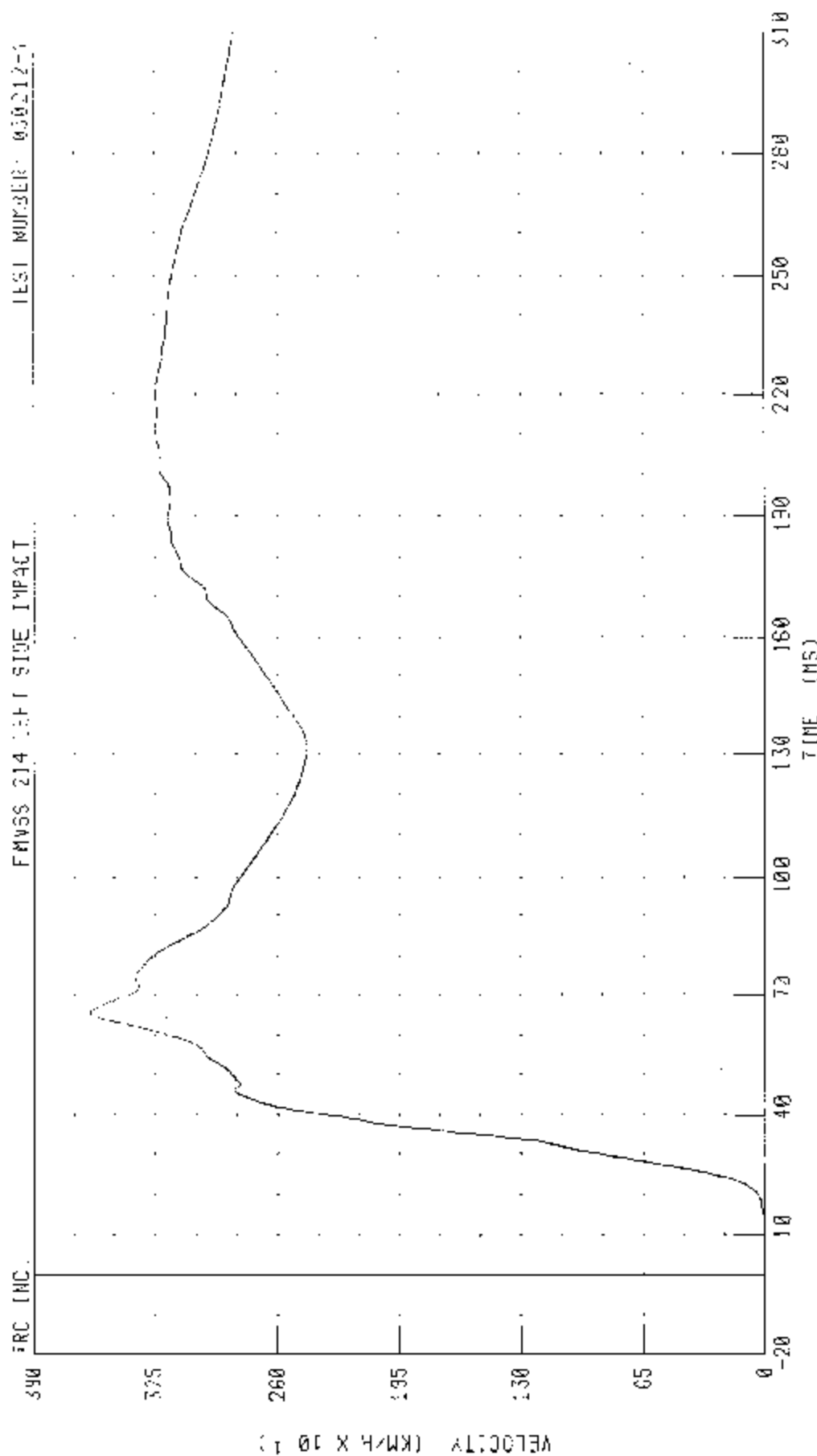
PEAK DATA: 60.39 0.073 80 MS, -27.16 0.046 04 MS

40/24 KPH 90 DEGREE SIDE IMPACT - MOVING DEFORMABLE BARRIER; INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER UPPER RIB X AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

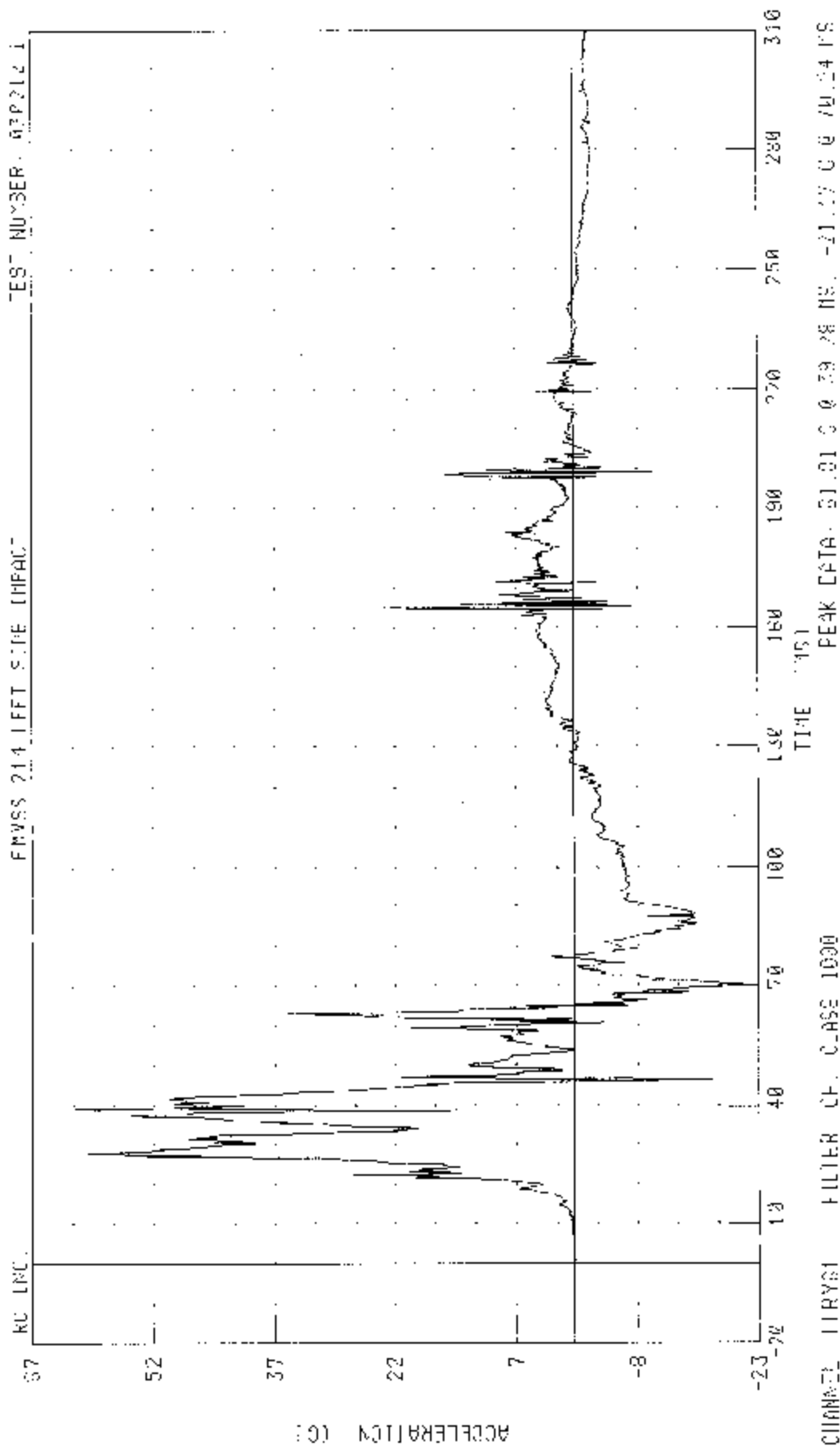
TEST NUMBER: 030212-1



CHANNEL: LURYY1 FILTER: CH. CLASS 180

PEAK DATA 35.95 KM/H @ 65.92 MS, 0.00 KM/H @ 2.24 MS

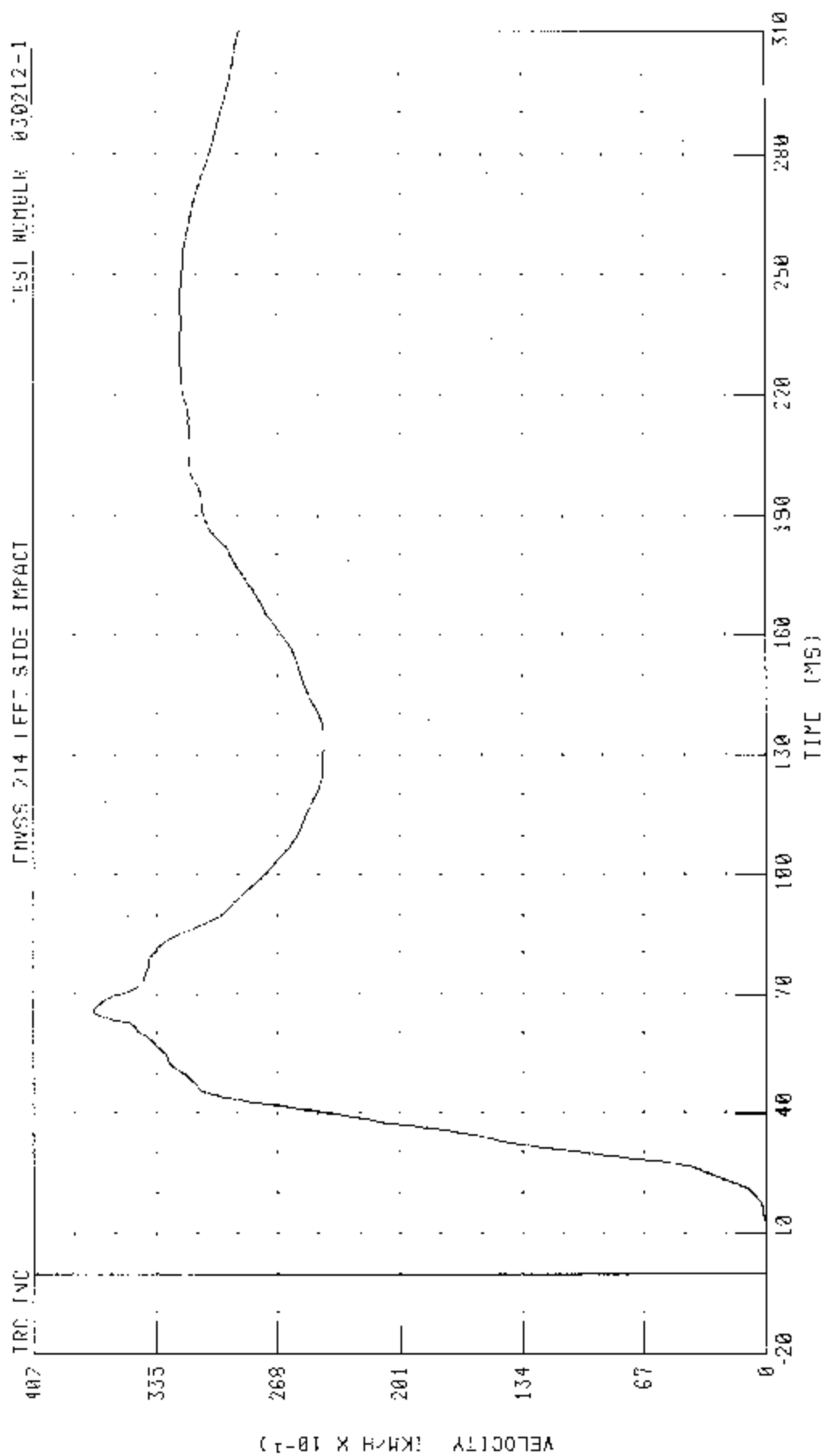
48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECT
 DRIVER LOWER RIB Y AXIS ACCELERATION



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INM D-1 3J-1 OF FMS MAZDA ROUTE 5

DRIVER LOWER RIB Y-AXIS VELOCITY

FWSS 214 LEFT SIDE IMPACT EST NUMBER 030212-1



PEAK DATA: 36.91 KPH @ 65.62 MS 0.30 KPH/MS 1.20 MS

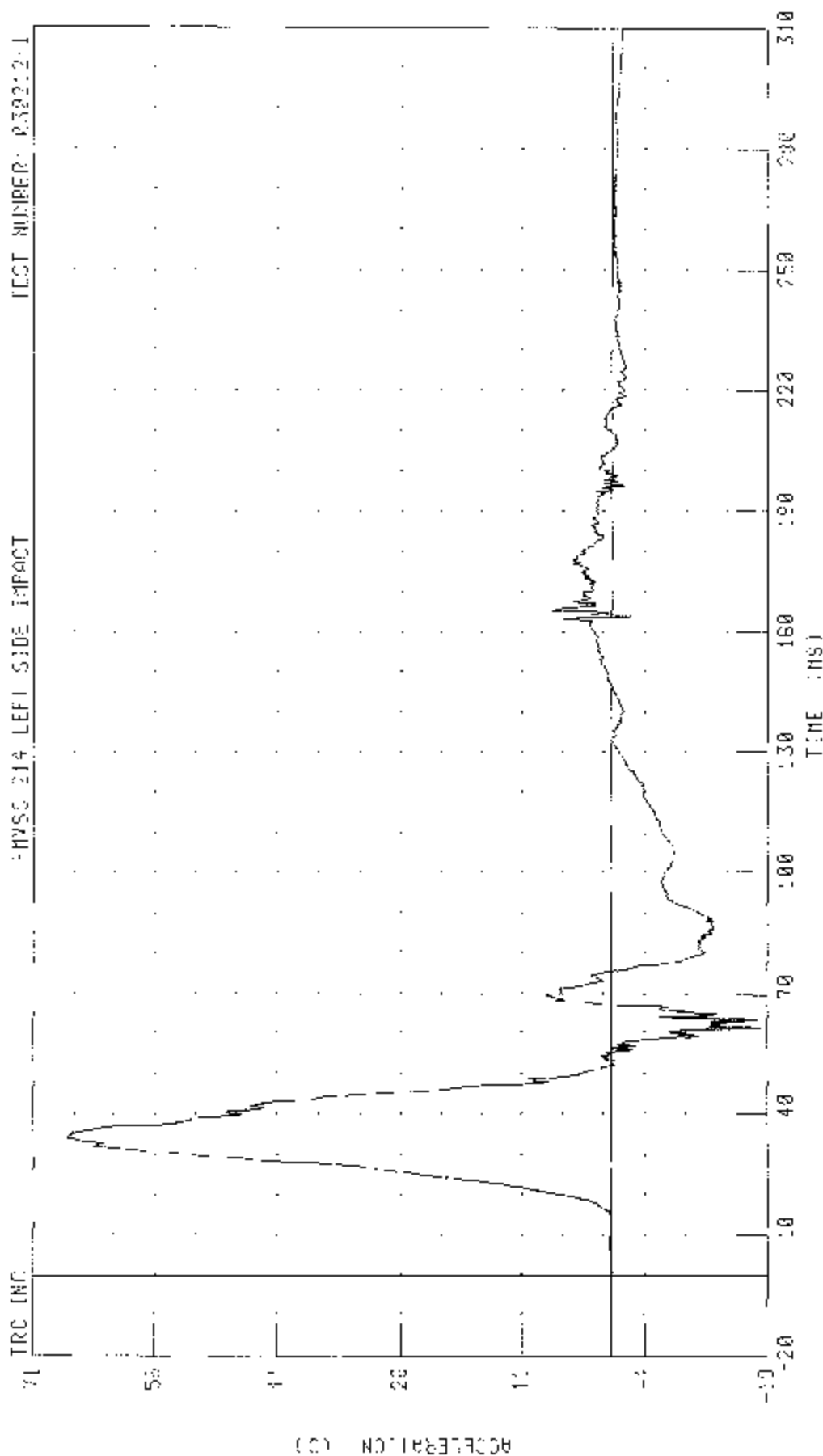
CHANNEL LLRYV1 FILTER: CH CLASS 130

48/24 KPII 30 DEGREE SIDE IMPACT (MOVING DEFLATABLE BARRIER) INTO LEFT SIDE J- 2043 K9210 PROTEGE S

DRIVER LOWER SPINE 1 AXIS ACCELERATION

-HVSC 214 LEFT SIDE IMPACT

TEST NUMBER: P332212-1



PEAK DATA: 50 87 0 0 34 88 HG; -18 12 0 0 61 04 %

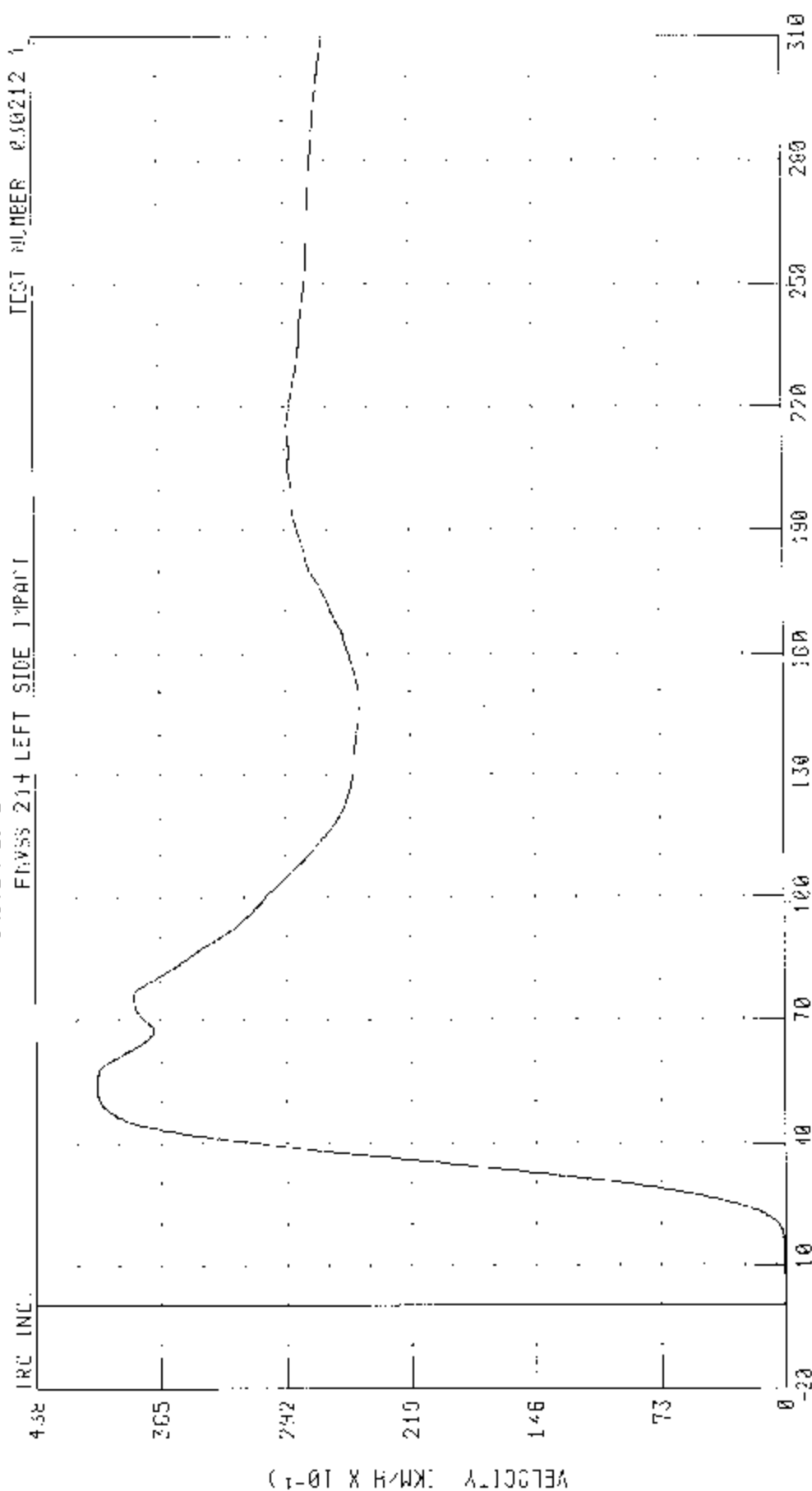
CHANNEL 112Y01 FILTER CH CLASS 1000

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING INFORMSIBLE BARRIER) JNUC LEFT SIDE OF ROAD 74714 PROTEGE 5

DRIVER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER 030212-1

FLWSS 214 LEFT SIDE IMPACT



TIME (MS)

PERK DATA: 40 IS KN/H @ 55 44 MS, 0 00 KN/H @ 0.00 MS

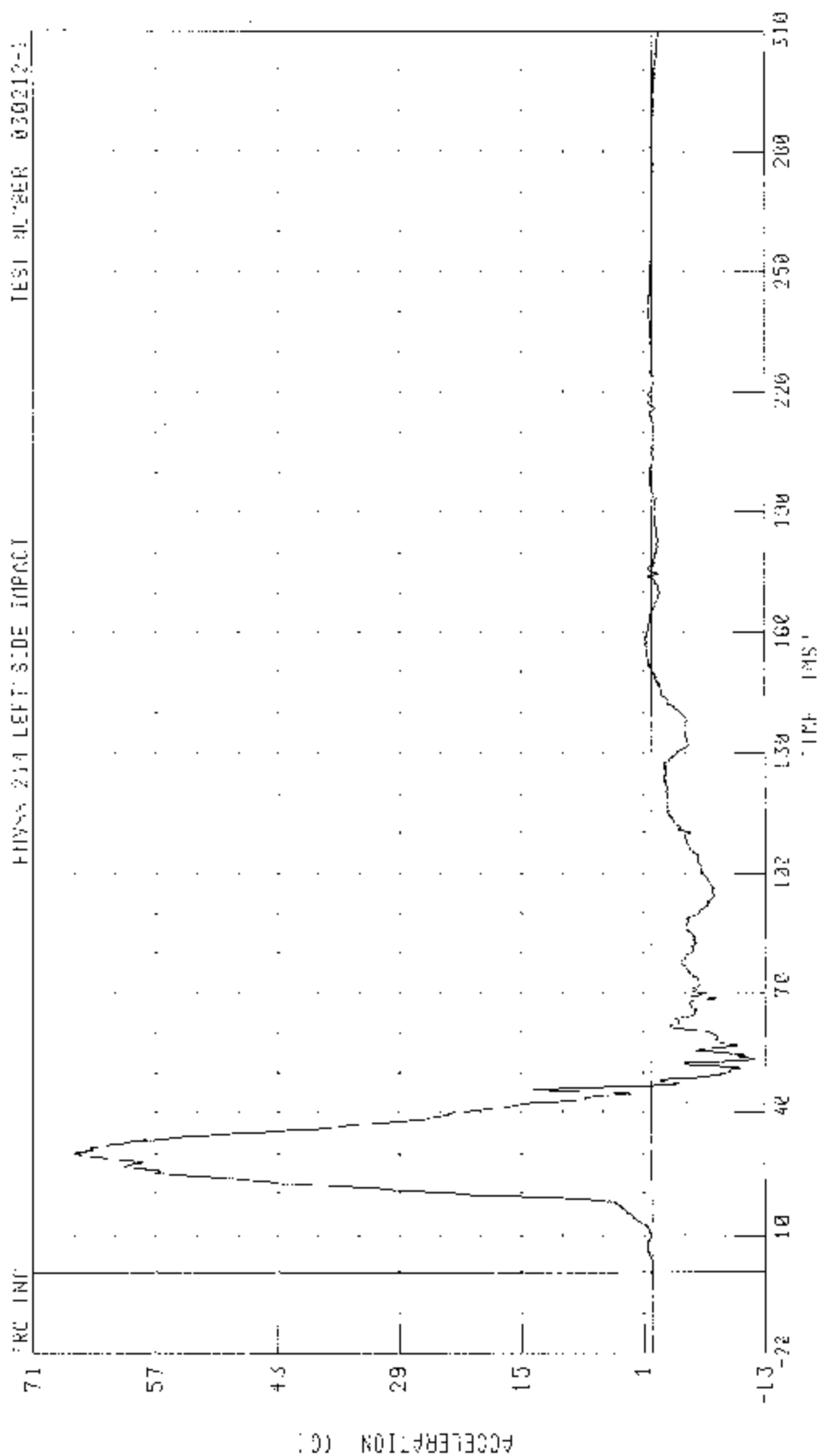
CHANNEL: TL2YV1 FILTER CH CLASS 180

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INITIAL SCENE OF 2000 MP/300 PROTECT D

DRIVER PELVIS Y AXIS ACCELERATION

HVNS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: PELVIC FILTER: 0.100 1000

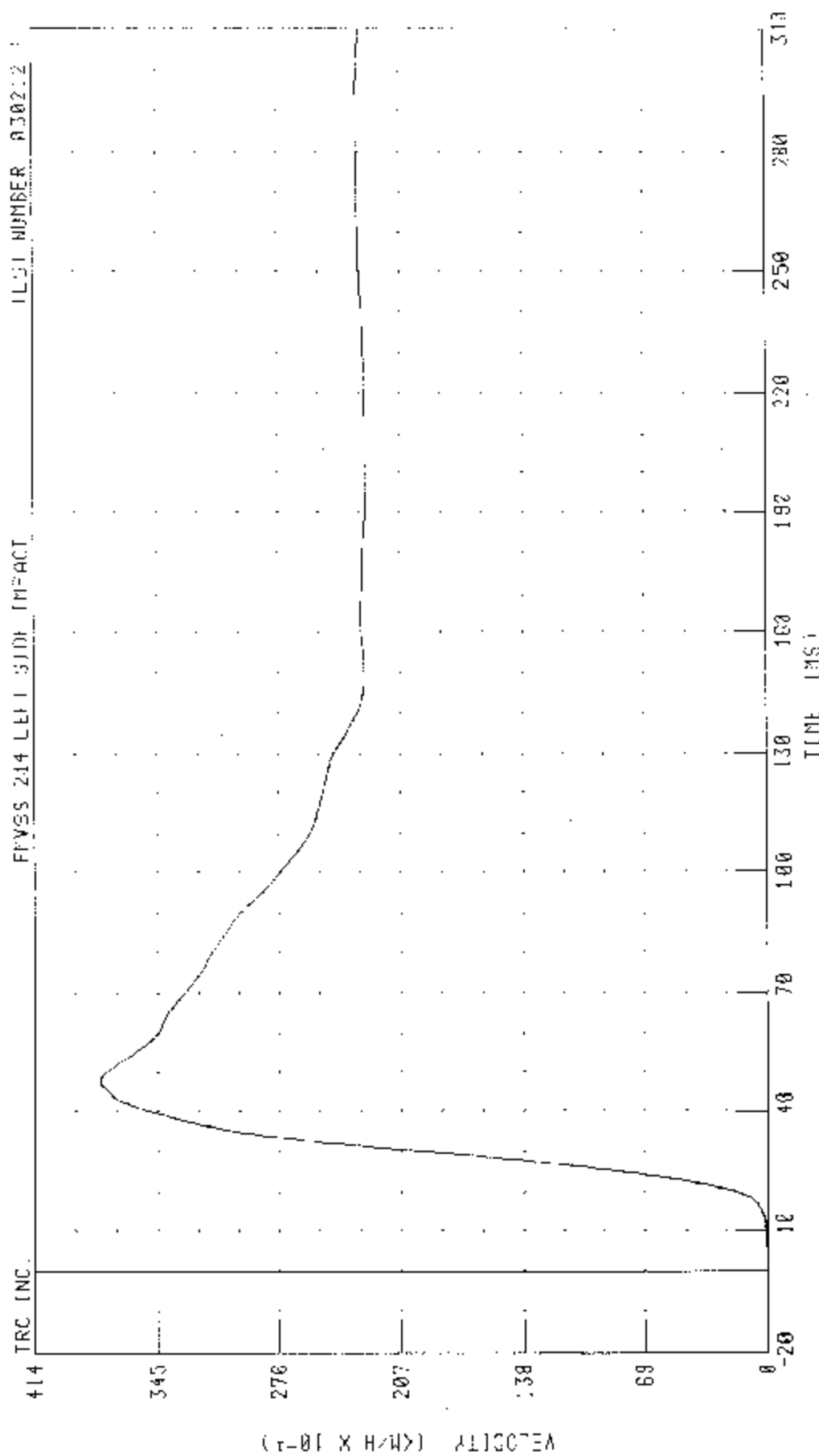
PEAK DATA: 66.21 G @ 52.52 MS; -11.85 G @ 53.20 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2005 MAZDA PROTECT 5

DRIVER PELVIS Y-AXIS VELOCITY

PEVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212



CHANNEL: PEVYV1 FILTER: CH. CLASS 100

PEAK DATA: 34.50 KM/H @ 47.60 MS; 0.00 KM/H @ 0.00 MS

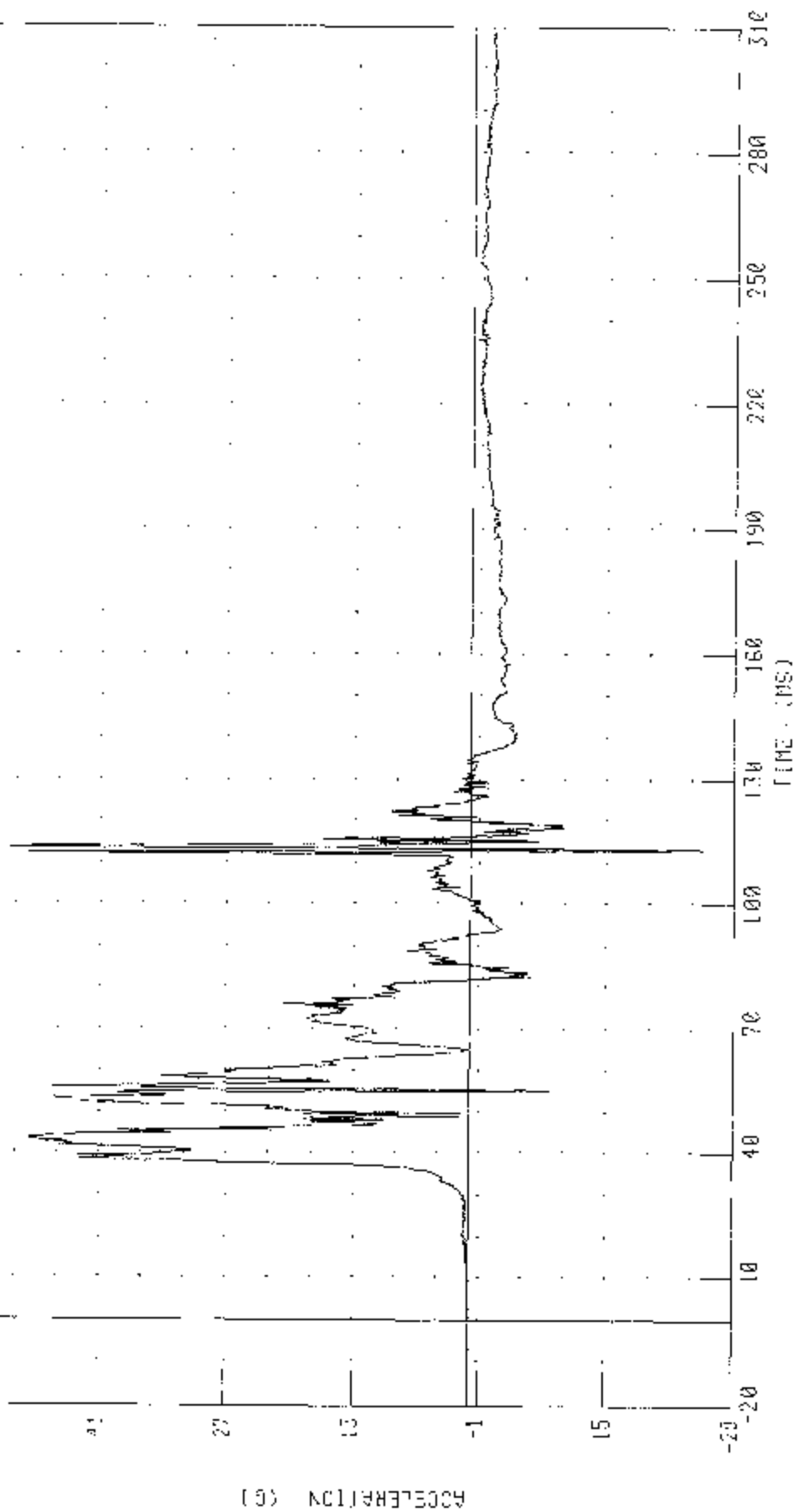
48/24 <PII 90 DEGREE SIDE IMPACT (MOVING OFF-RAMPABLE CARRIER) INTO LEFT SIDE OF 2002 HP/10 PROTECT 5

LEFT REAR PASSENGER UPPER RIB Y AXIS ACCELERATION

55 IRG INC

FNVS 214 LEFT SIDE IMPAC

TEST NUMBER 030212-1



CHANNEL 1 URY04 FILTER CH CLASS 1000

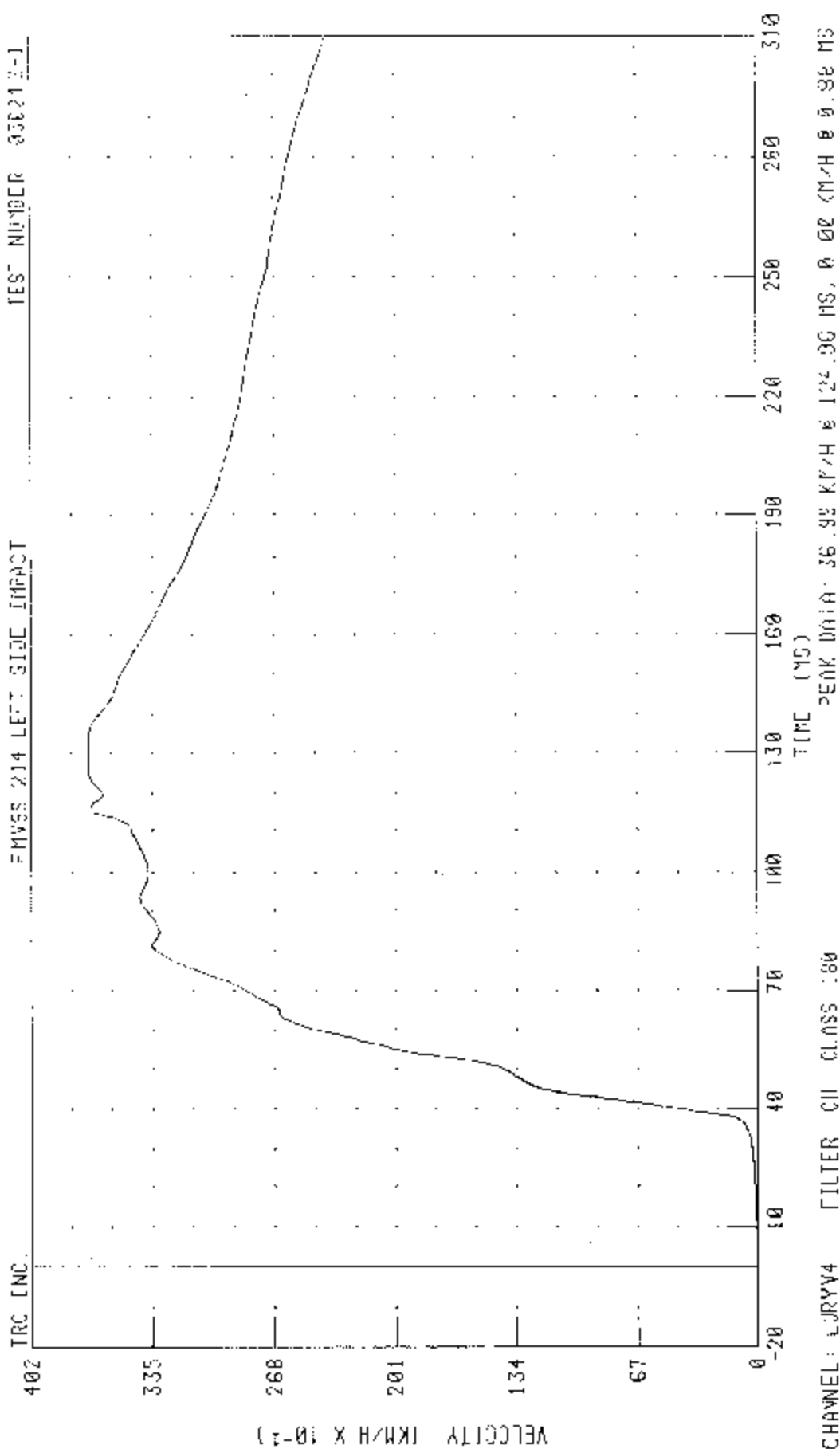
TIME (MS) PEAK DATA: 53.29 G @ 113.76 MS; -20.83 G @ 173.28 MS

48/24 KPH 50 DEGREE SIDE IMPACT (MOVING DEFORMER F BARRIER) INTO LEFT SIDE OF 2003 MAZDA PRUNCE S

FBI REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER 030212-1

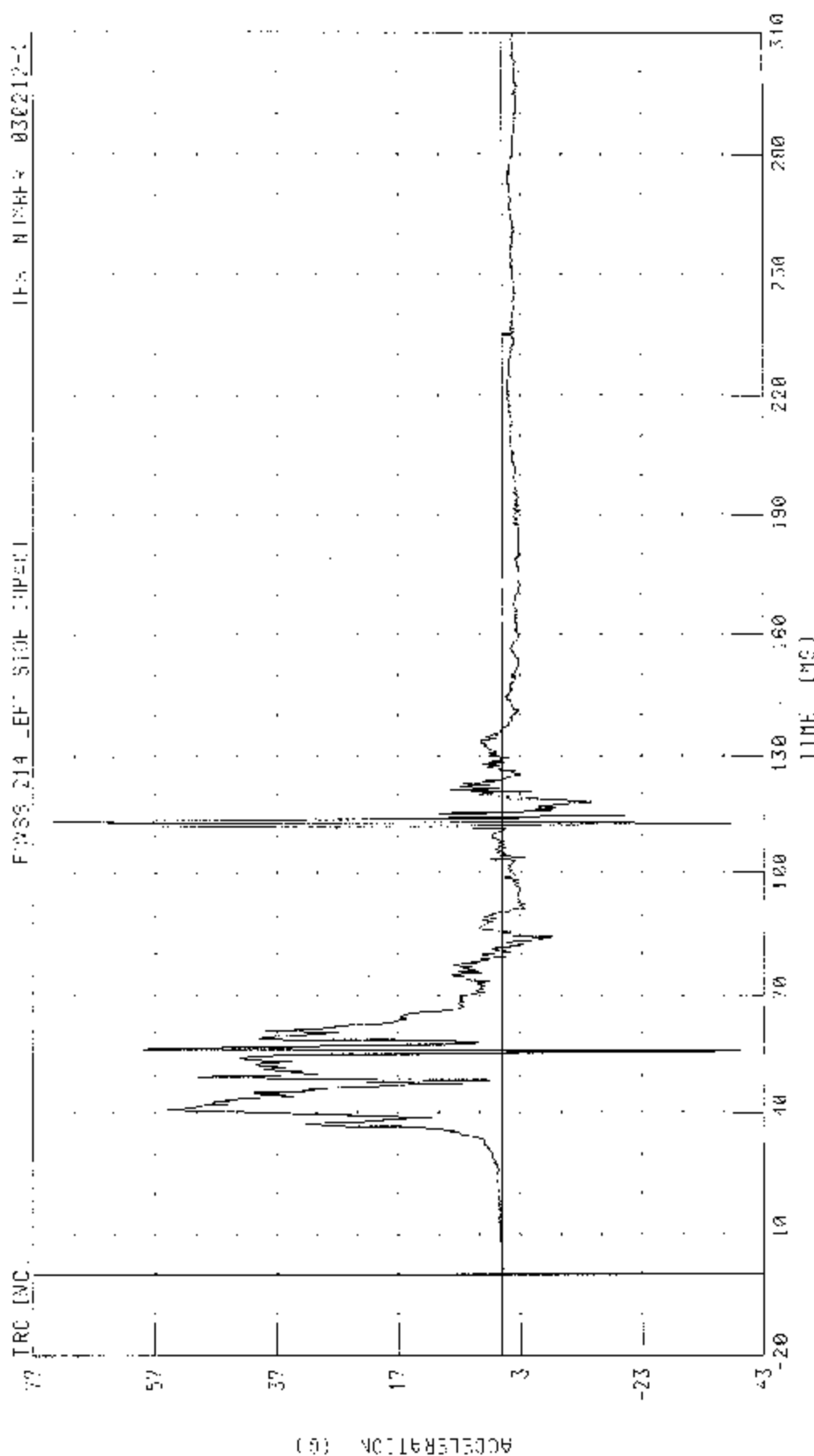
FMVSS 214 LEFT SIDE IMPACT



48/24 X 10 DEGREE SIDE IMPACT (MOVING UICORABLE BARRIER) INTO LEFT SIDE OF 2007 HAZARD PROTECT 5

LEFT REAR PASSENGER LOWER RIB X AXIS ACCELERATION

TRC INC. F0206 214 LEFT SIDE IMPACT IFS NUMBER 030212-1

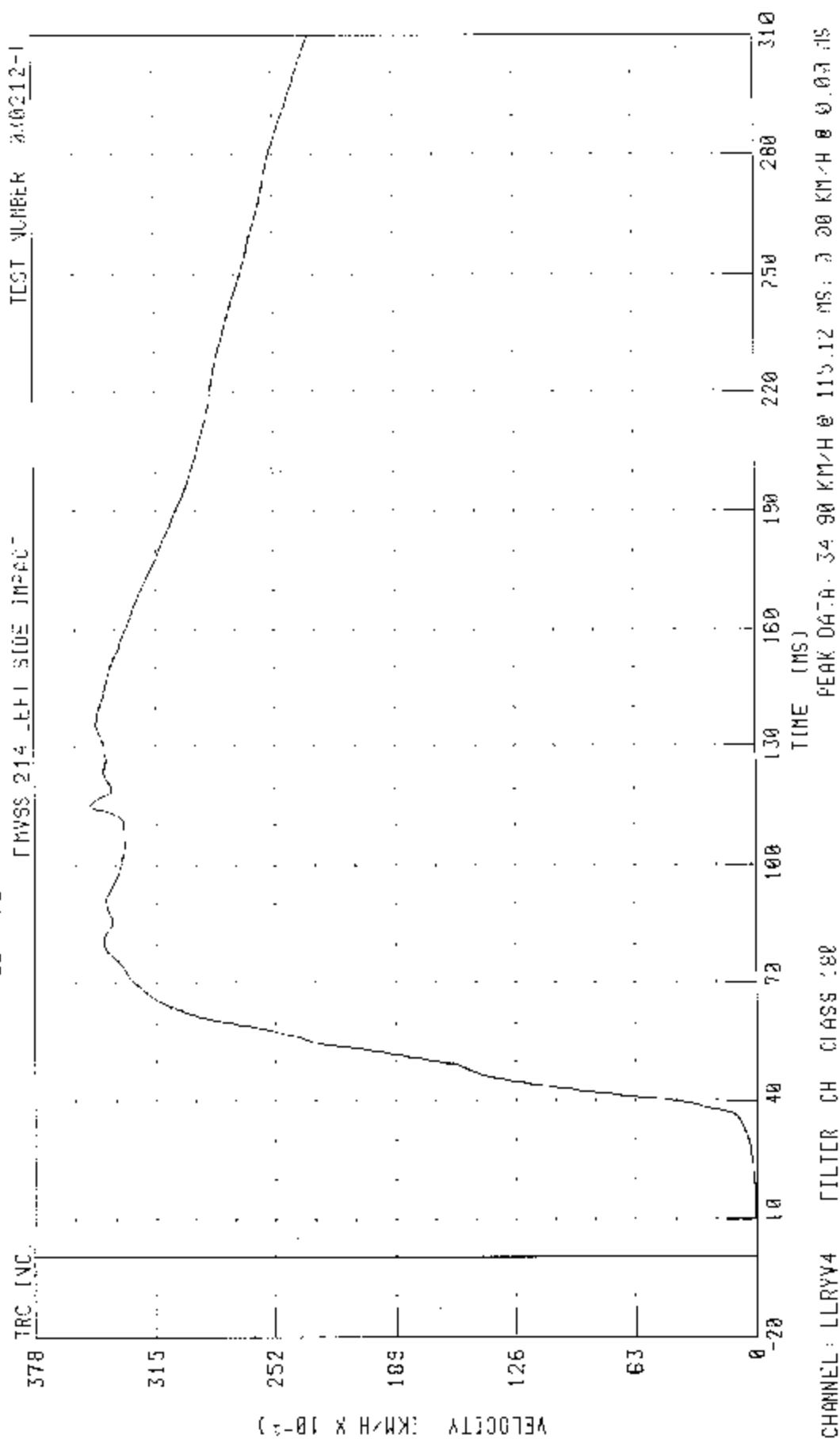


CHANNEL -LRY04 FILTER -CF CLASS 1000

TIME (MS) PEAK DATA: 13.75 G @ 113.34 MS 39.35 G @ 55.92 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INFO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

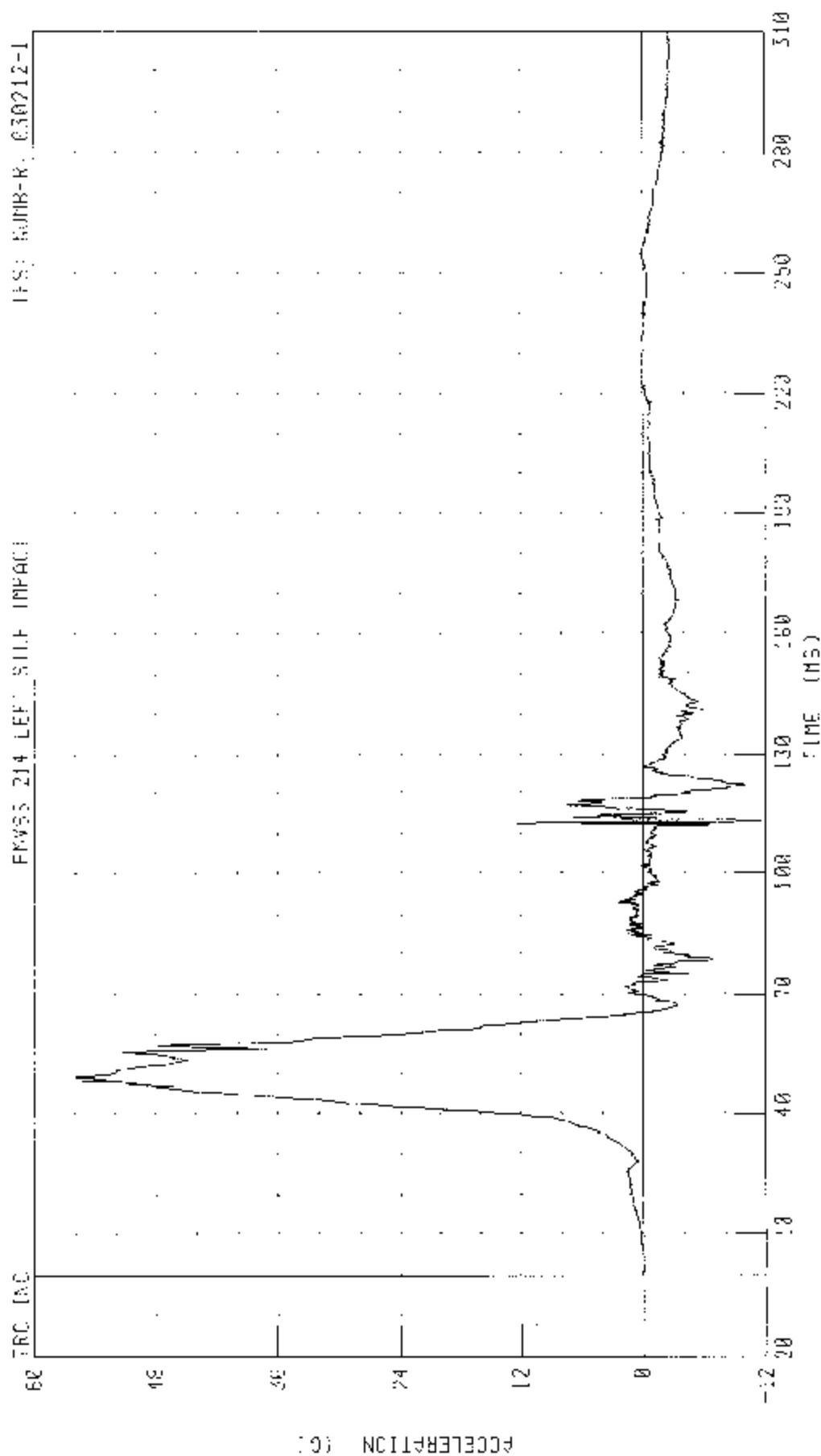


48/24 <PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2002 K4ZDA PROTEGE 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT SILL IMPACT

IFS: K4NR-R, 030212-1



CHANNFI: T12Y24 FILTR: 501, CLASS 1000

PECK DATA: 58 01 3 0 19 20 MS, -11 35 0 0 113 28 YS

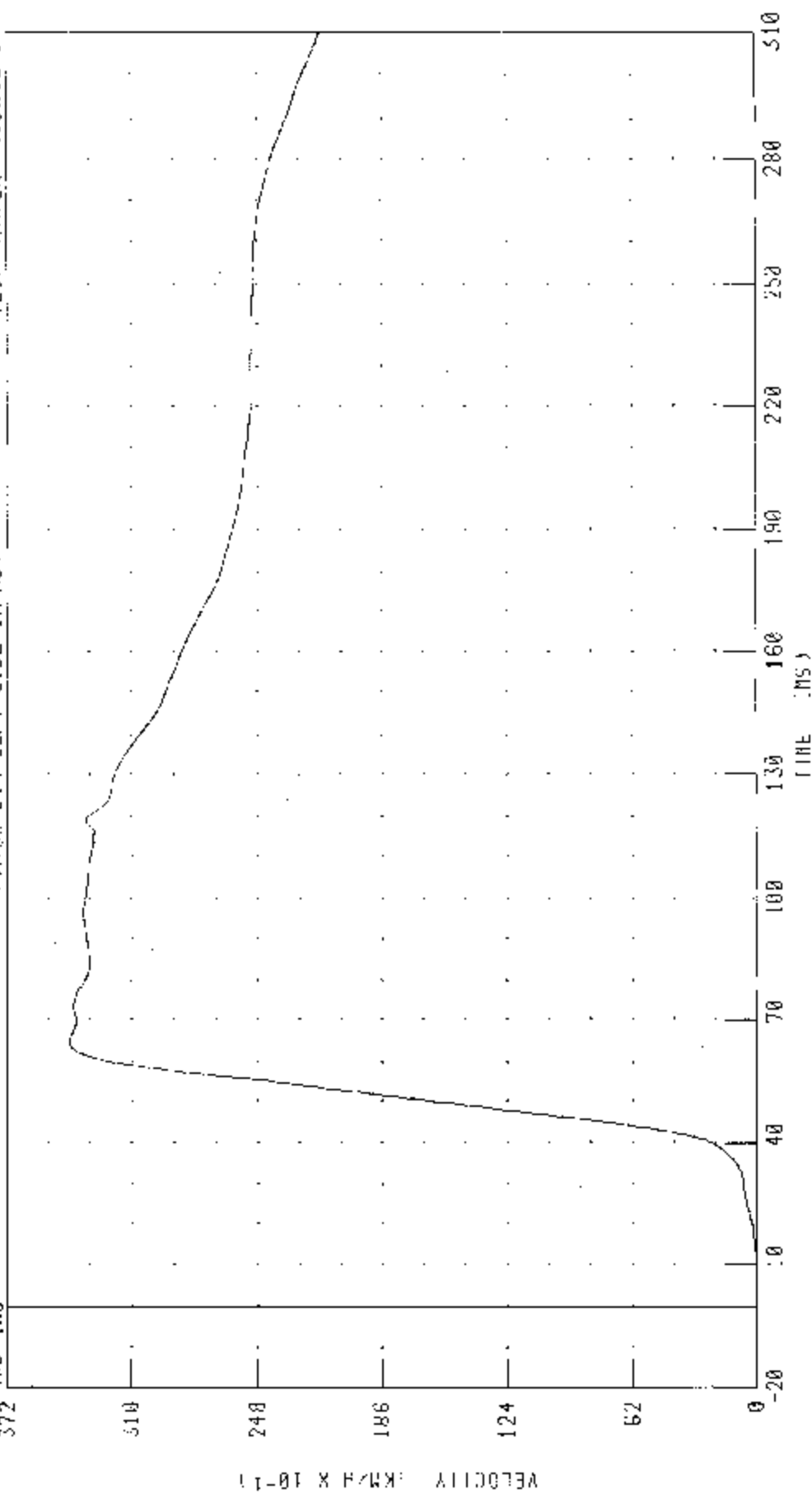
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) - NO LEFT SIDE OF 2003 MAZDA PROTECT 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 030212-1

ENVSS 214 LEFT SIDE IMPACT

TRC INC



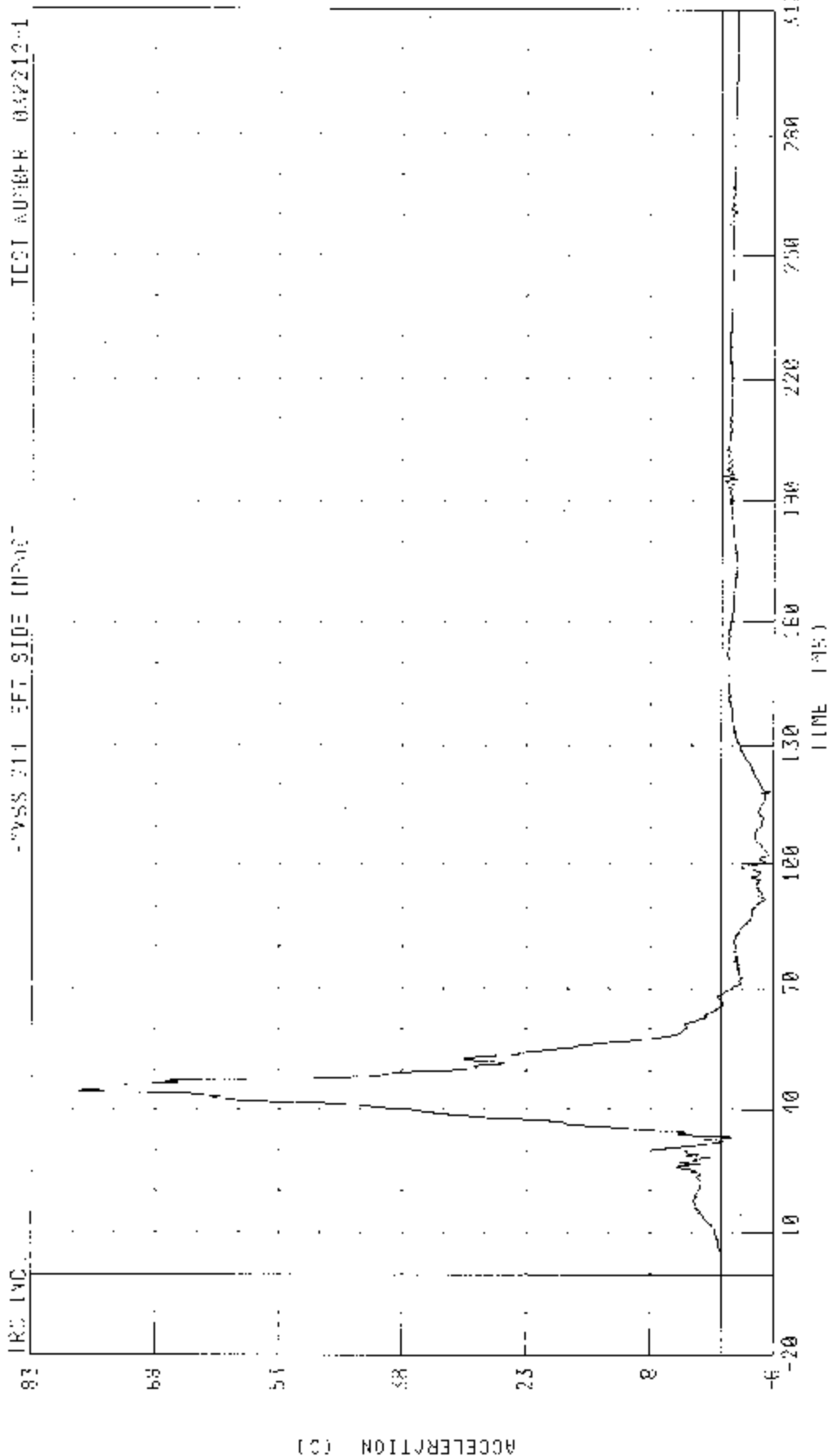
CHANNEL 112YV4 FT.TFR CH. CIVSS 180

PEAK DATE 34 07 KPH @ 65 28 MS; 0 00 KPH @ 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFLECTIBLE BARRIER 100 MPH SIDE OF ROAD PROTECT 5

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER 030212-1



CHANNEL: PEY04 -1L L3: CIL CLASS 1200

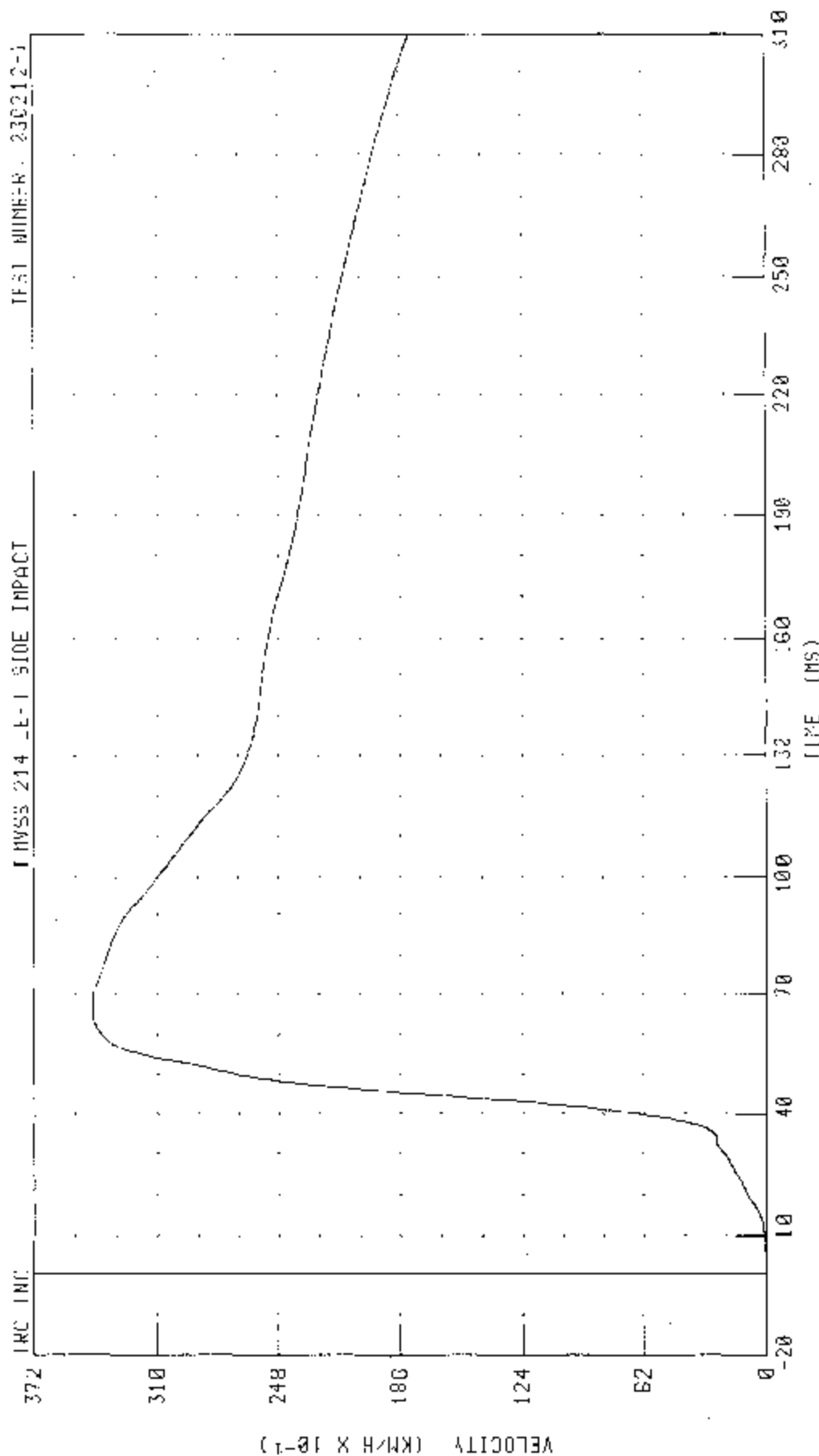
PEAK DATA 78 22 0 0 44 72 MS. -5.00 0 0 118.03 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LCF1 REAR PASSENGER PEV115 Y-AXIS VELOCITY

TEST NUMBER: 230212-1

HYSS 214 -E-1 SIDE IMPACT



CHANNEL: PEV115 FILTER: CH CLASS 100

PEAK DATE: 34 75 KM/H @ 68.80 MS; 0 80 KM/H @ 0 00 MS

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

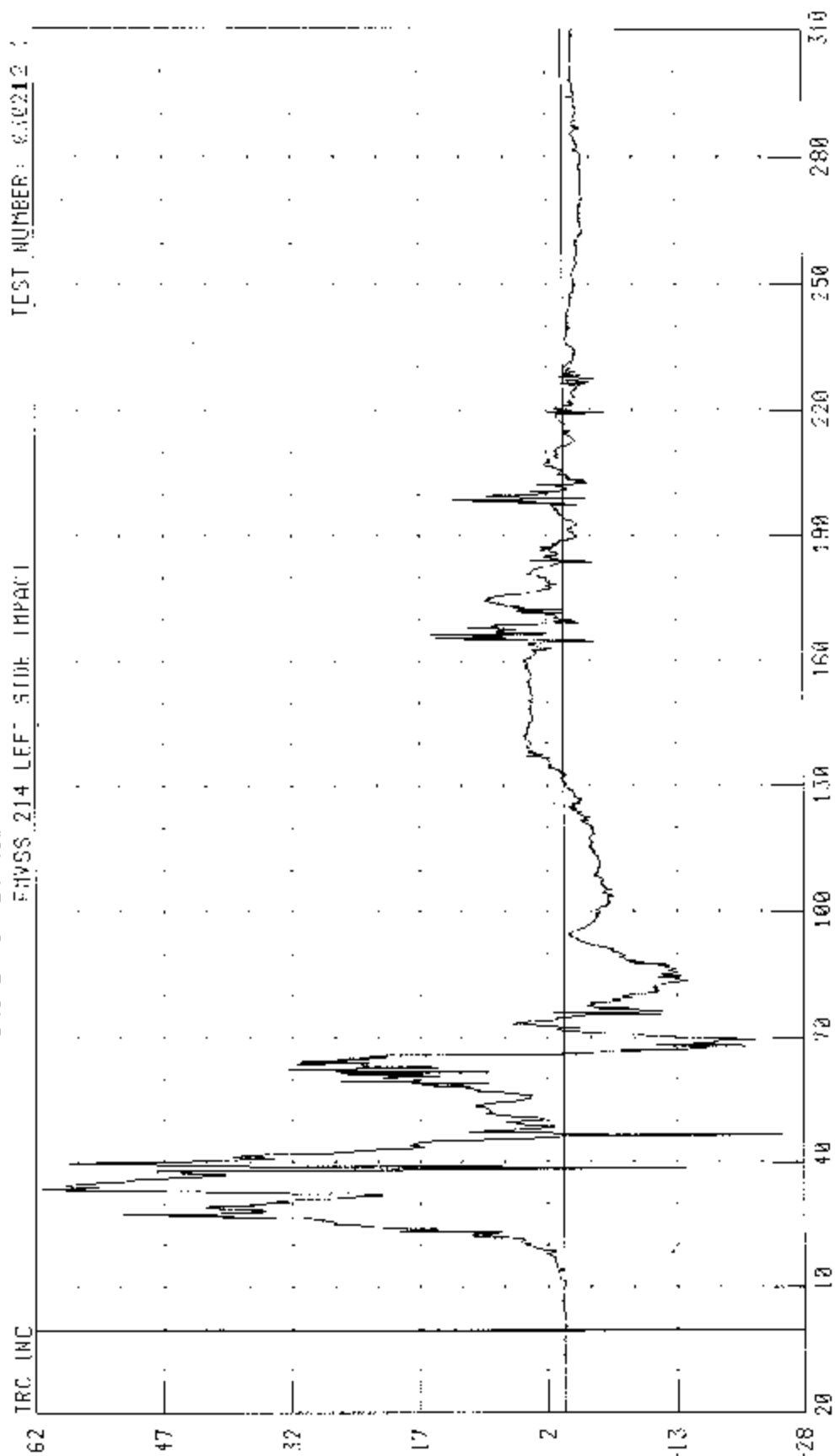
Integration Data - Filter Class 180 - Redundant

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 MAZDA PROTEGE S

DRIVER UPPER RIB Y-AXIS RESONANT ACCELERATION

TEST NUMBER: 030212-1

ENVSS 214 LEFT SIDE IMPACT



CHANNEL: LURYR1 FILTER: CII CLASS: 1000

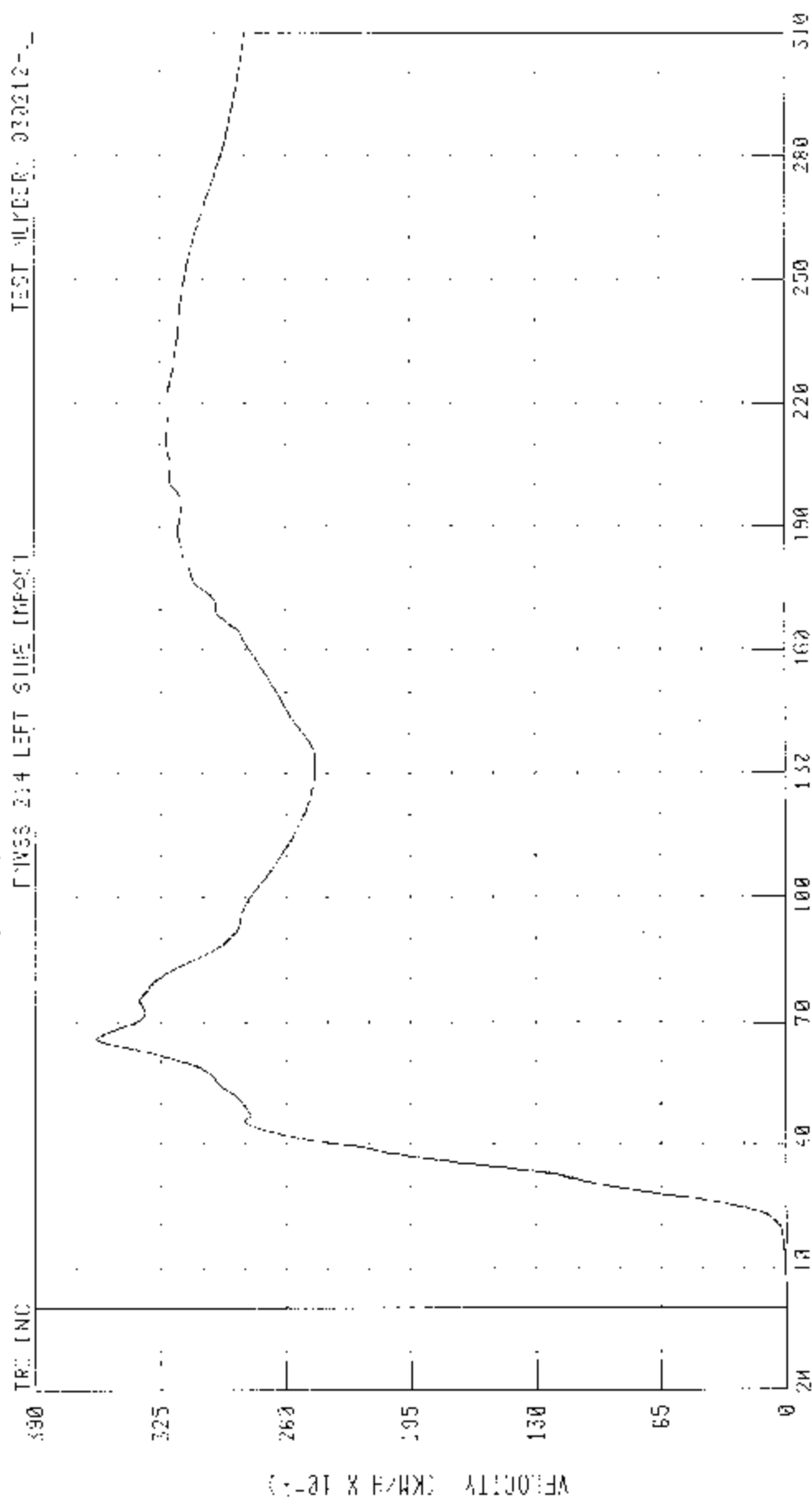
PEAK DATA: 61.34 G @ 33.92 MS; -23.82 G @ 46.64 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMLABLE CARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030212-1

FINISH 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL LIRYVI FILTER CH CLASS 180

PEAK DATA 35.82 KM/H @ 66.00 MS, 0.00 KM/H @ 1.12 MS

VELOCITY (KM/H X 10⁻¹)

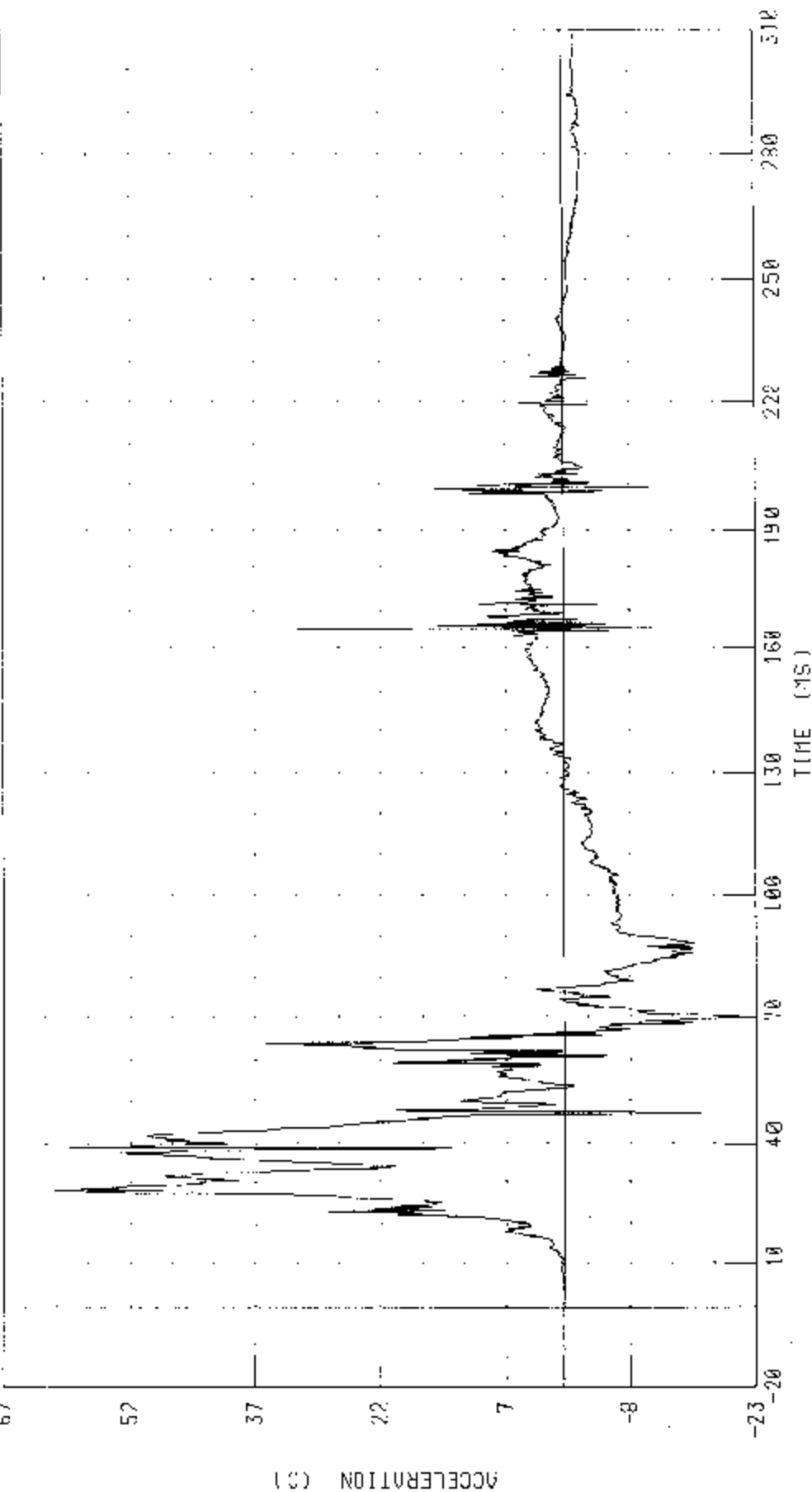
48-24 K-R 90 INCHES SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZOP PROFILE 5

DRIVER LOWER RIB X-AXIS REAJOANT ACCELERATION

TEST NUMBER 030212 1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



CHANNEL LLRY21 FILTER CF. CLASS 1000

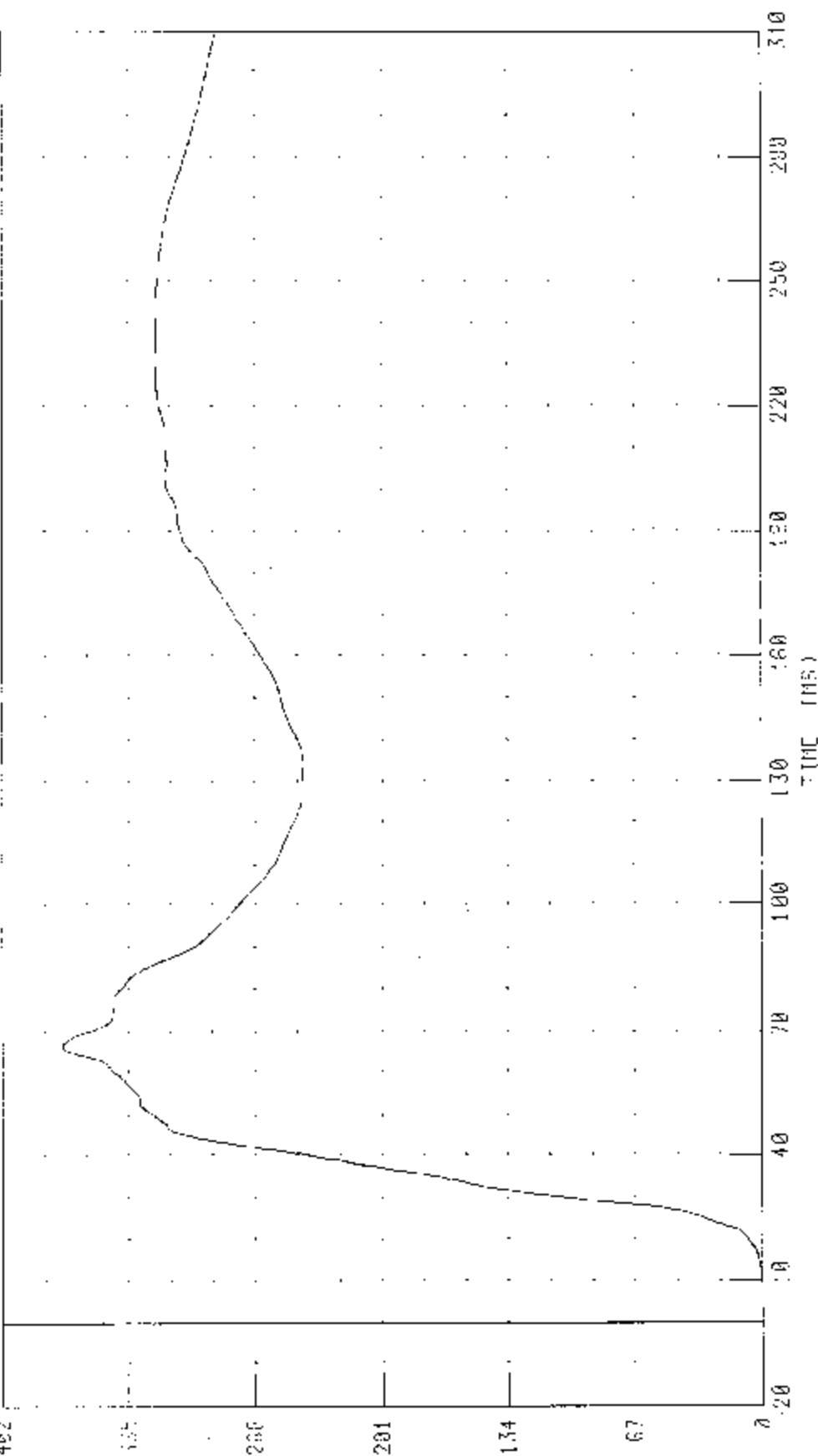
PEAK DATA 61 04 0 0 39 28 "S, -21.02 0 0 70.24 "S

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO I-HI SUFF OF 2003 MAZDA PROTEGE S

DRIVER LUMPS HIS Y AXIS REDUNDANT VELOCITY

TRC INC. FVSS 214 LEFT SIDE IMPACT TEST NUMBER 230212-1

VELOCITY (KPH X 10⁻¹)



CHANNEL ELR0V1 TILTED CR. CLASS 180

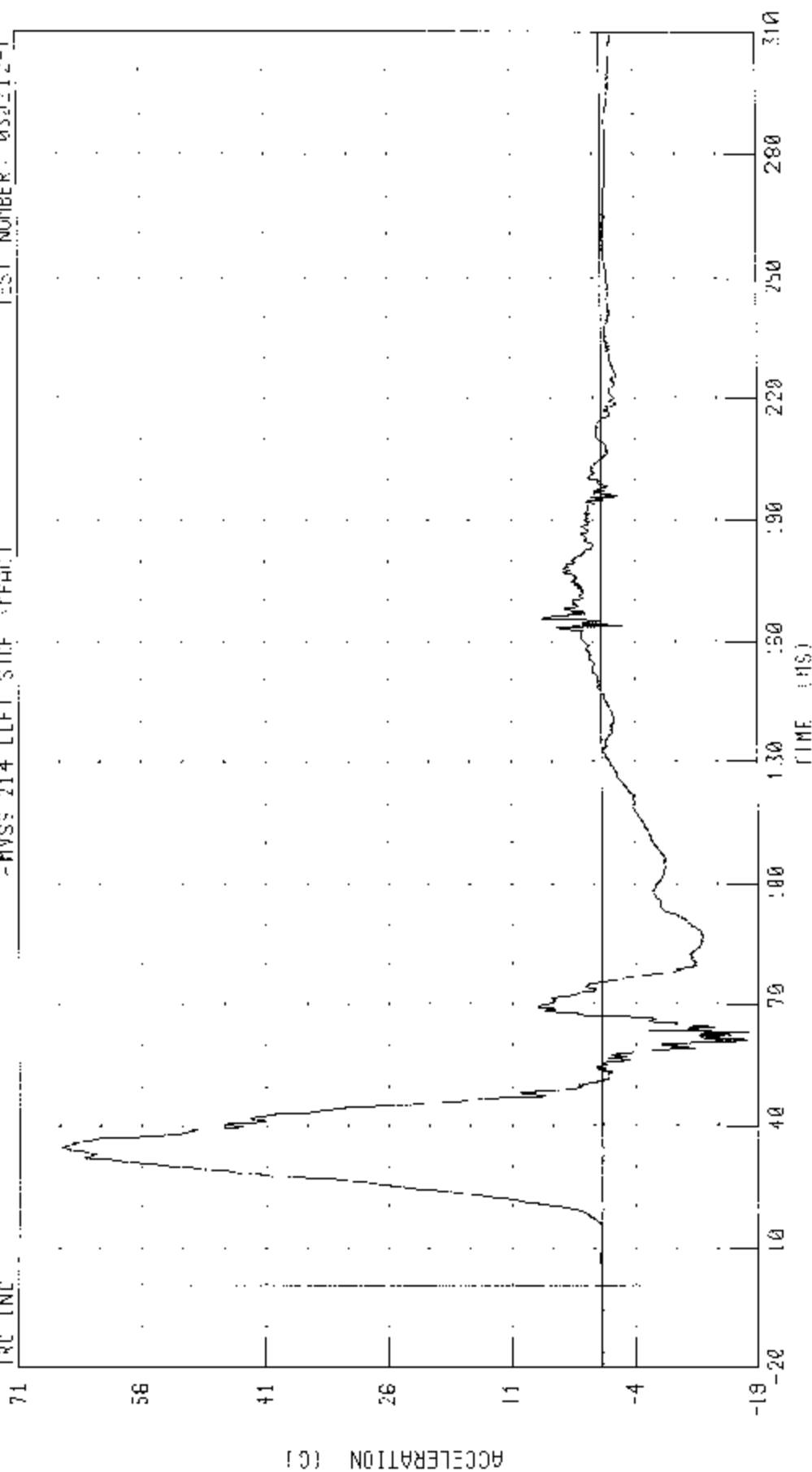
PEAK DATA: 37.00 KM/H @ 65.42 MS; 0.00 KPH @ 2.00 MS

43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE
 DRIVER LOWER SPINE Y-AXIS HEADLINE ACCELERATION

TEST NUMBER: 030212-1

-MVSS 214 LEFT SIDE IMPACT

TRC INC

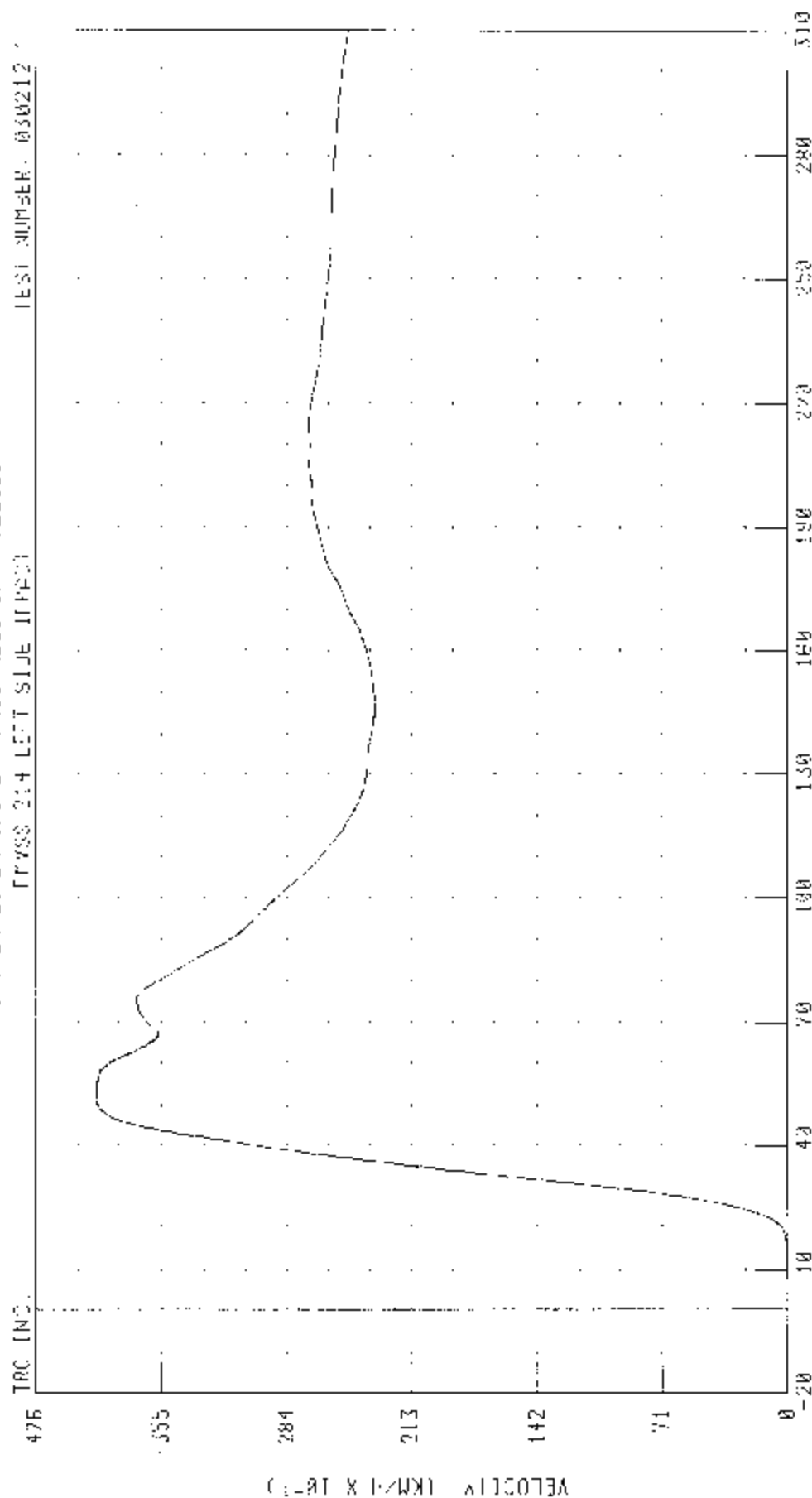


CHANNEL: T12YR1 FILTER: CH CLASS 1000

PEAK DATA 65.00 G @ 34.34 MS, -17.70 G @ 153.04 MS

48/24 4PH 50 DEGREE SIDE IMPACT MOVING DEFURABLE BARRIER INTO LEFT SIDE OF 2035 WOODA PRACTICE 5

DRIVER LOWER SPINE V-AXIS REDUNDANT VELOCITY



CHANNEL: T12/VI FILTER: CIL CLASS 120

FIVE INS

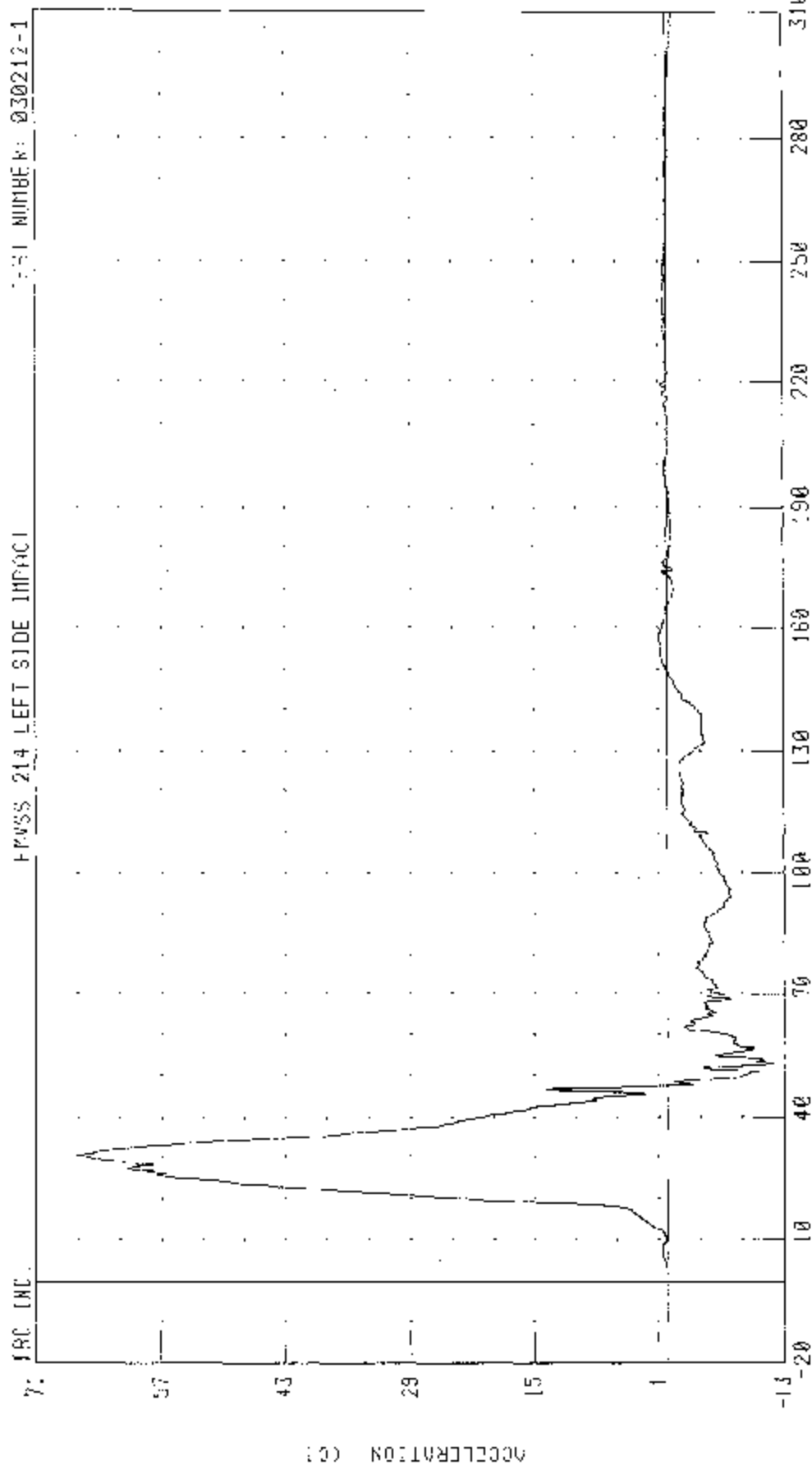
PEAK DATA: 39.10 KM/H @ 51.62 MS; 4.40 KM/H @ 0.00 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN O LEFT SIDE IF 2ND MAINA PROTEGE 5

DRIVER PELVIS Y-AXIS REINFLATOR ACE FRATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TIME (MS)

CHANNEL: PEVPR1 FILTER: CH CLOSS 1000

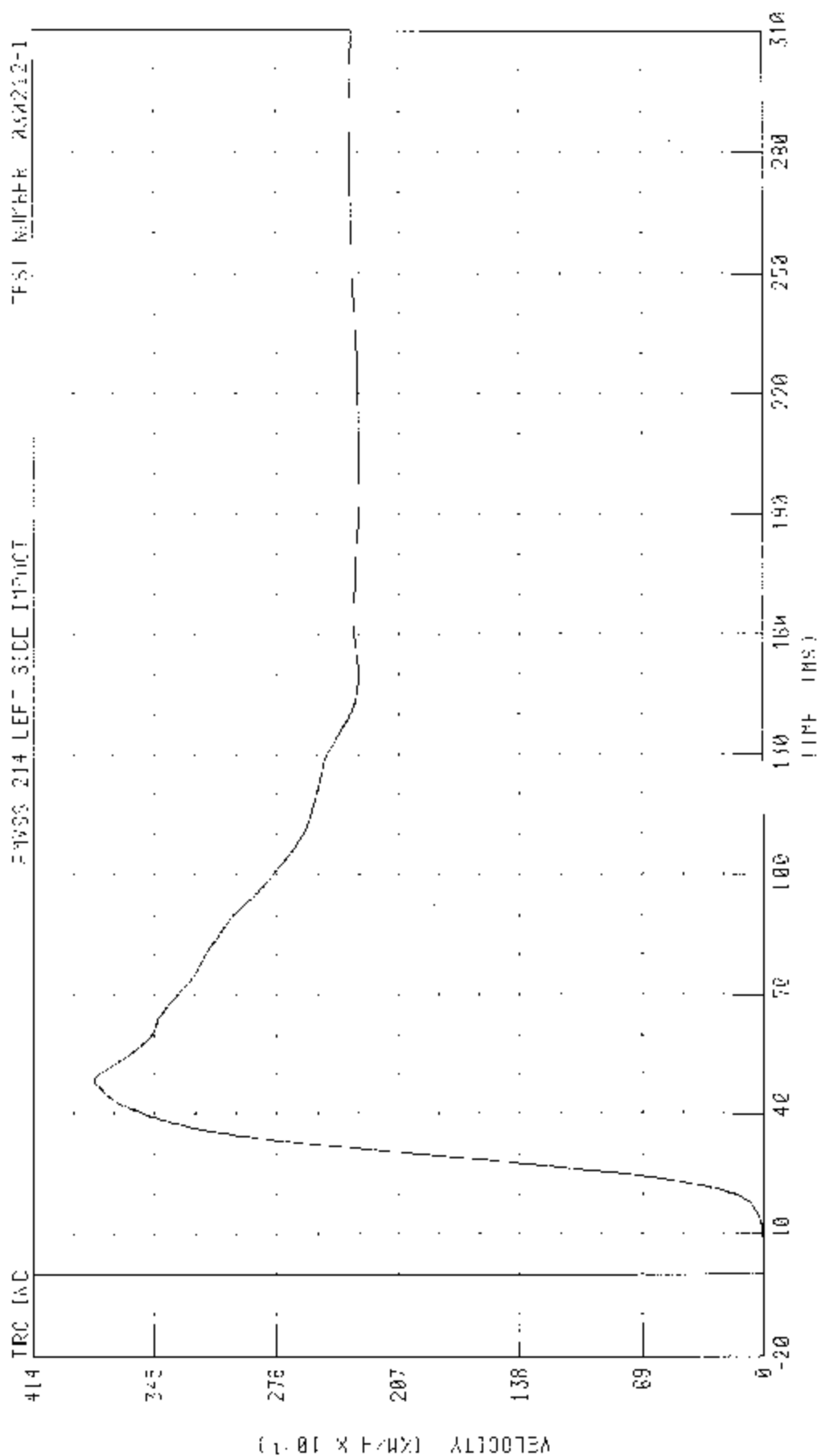
PEAK DATA 56.45 G @ 38.32 MS, -11.32 G @ 53.28 MS

48/24 KPH 00 DEGREE SIDE IMPACT CRUSHING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 M2/10 PROTEGE 5

UPPER PELVIS Y AXIS RETARDATION VELOCITY

TEST NUMBER 250212-1

FASS 214 LEFT SIDE IMPACT



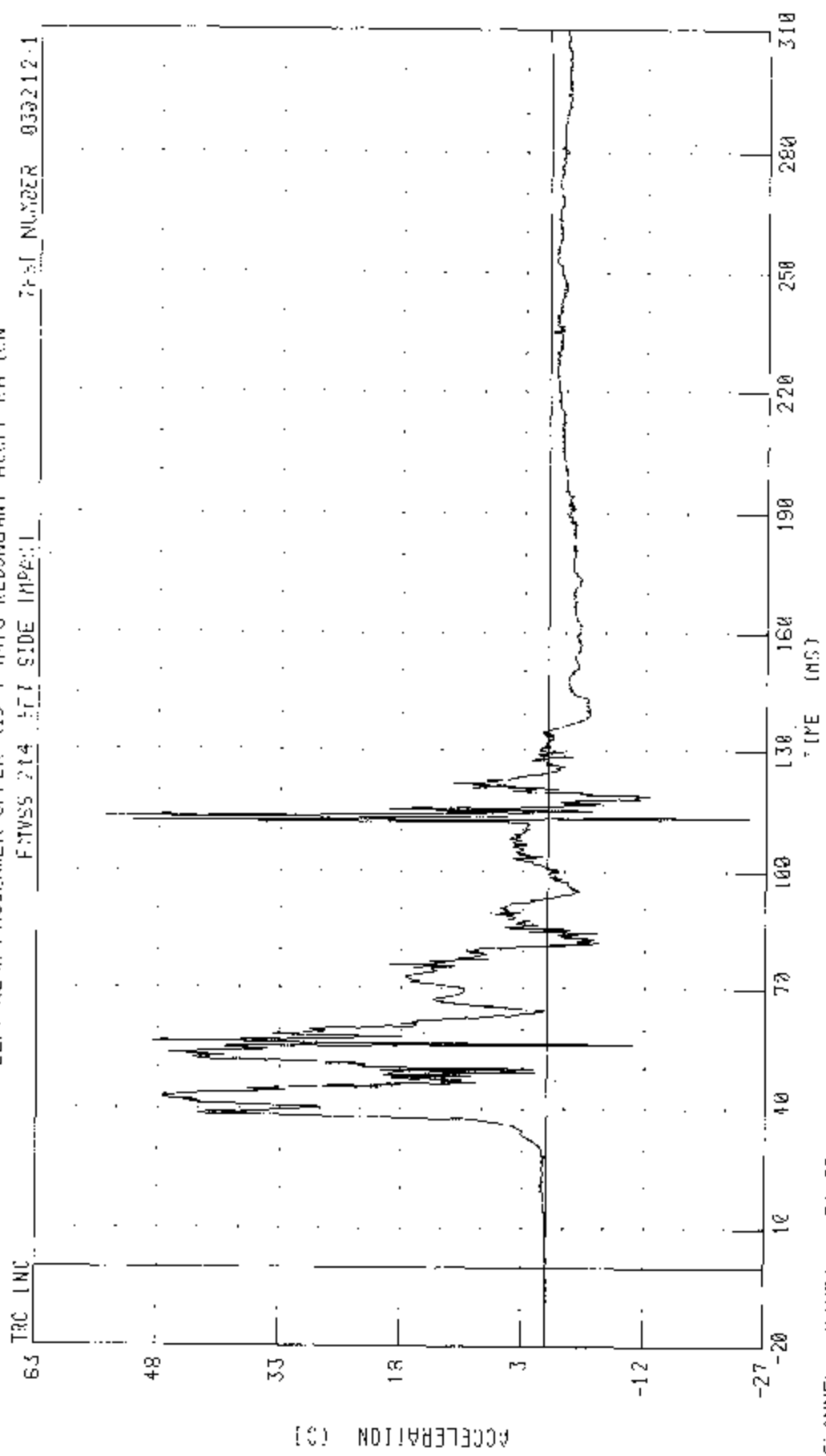
TIME (MS)

PEAK DATA: 37.94 KM/H 0 47 00 MS 0.00 KPH 0 0 00 YS

CHANNEL PEVYVI FILTER CH CLASS 130

(1.01 X 10^4) ALIQUOT

48/24 KPII 90 DE-REF SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 YF701A PROTECTIVE S
 LEFT REAR PASSENGER UPPER R13 Y-AXIS REDUNDANT ACCELERATION



CHANNEL CURYR4 FILTER CH CLASS 1800

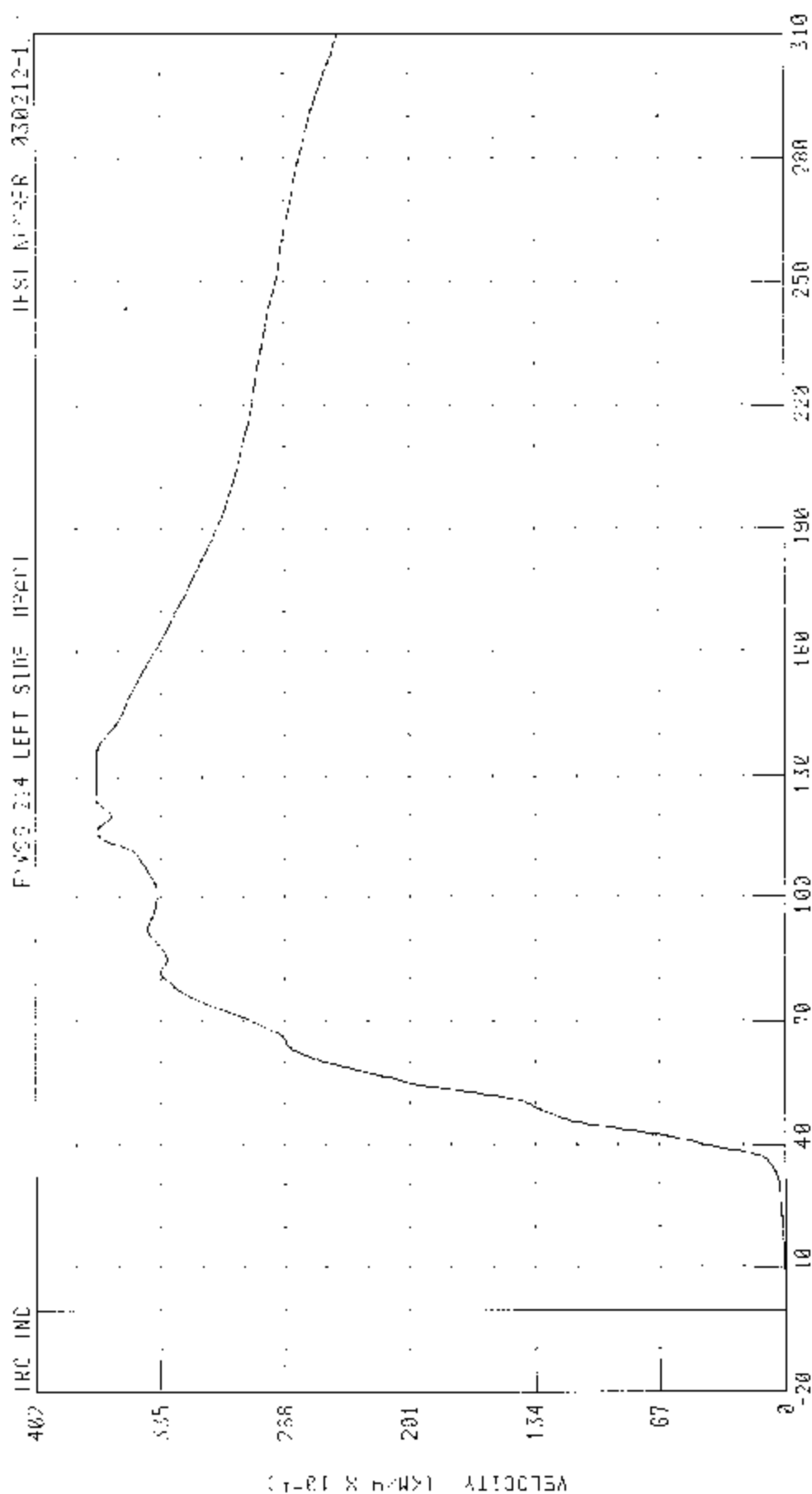
PEAK DATA: 57.13 G @ 112.56 MS; -24.84 G @ 113.78 MS

48/24 <P-00 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTECT 5

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 030212-1

PW00 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 35.51 <H/H 124.80 MS, 2.20 KM/H 8.0 60 MS

CHANNEL LURVJ FILTER CH. CLASS 100

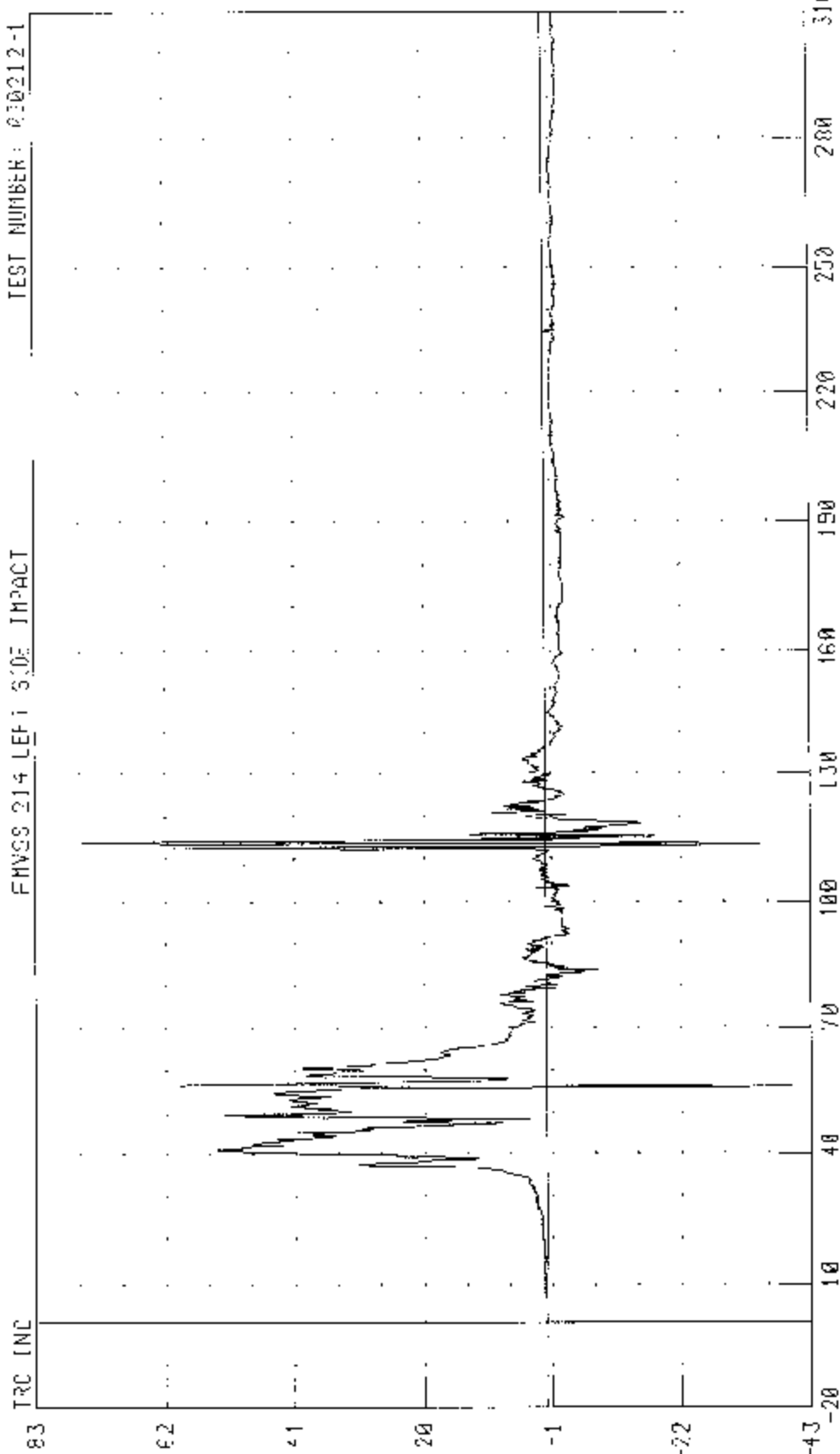
46/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PRUTEGE 5

LEFT REAR PASSENGER LOWER RIB Y AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



CHANNEL: LRY34 FILTER: C3 CLASS: 1000

PEAK DATA 75.48 G @ 113.84 MS; -39.80 G @ 55.92 MS

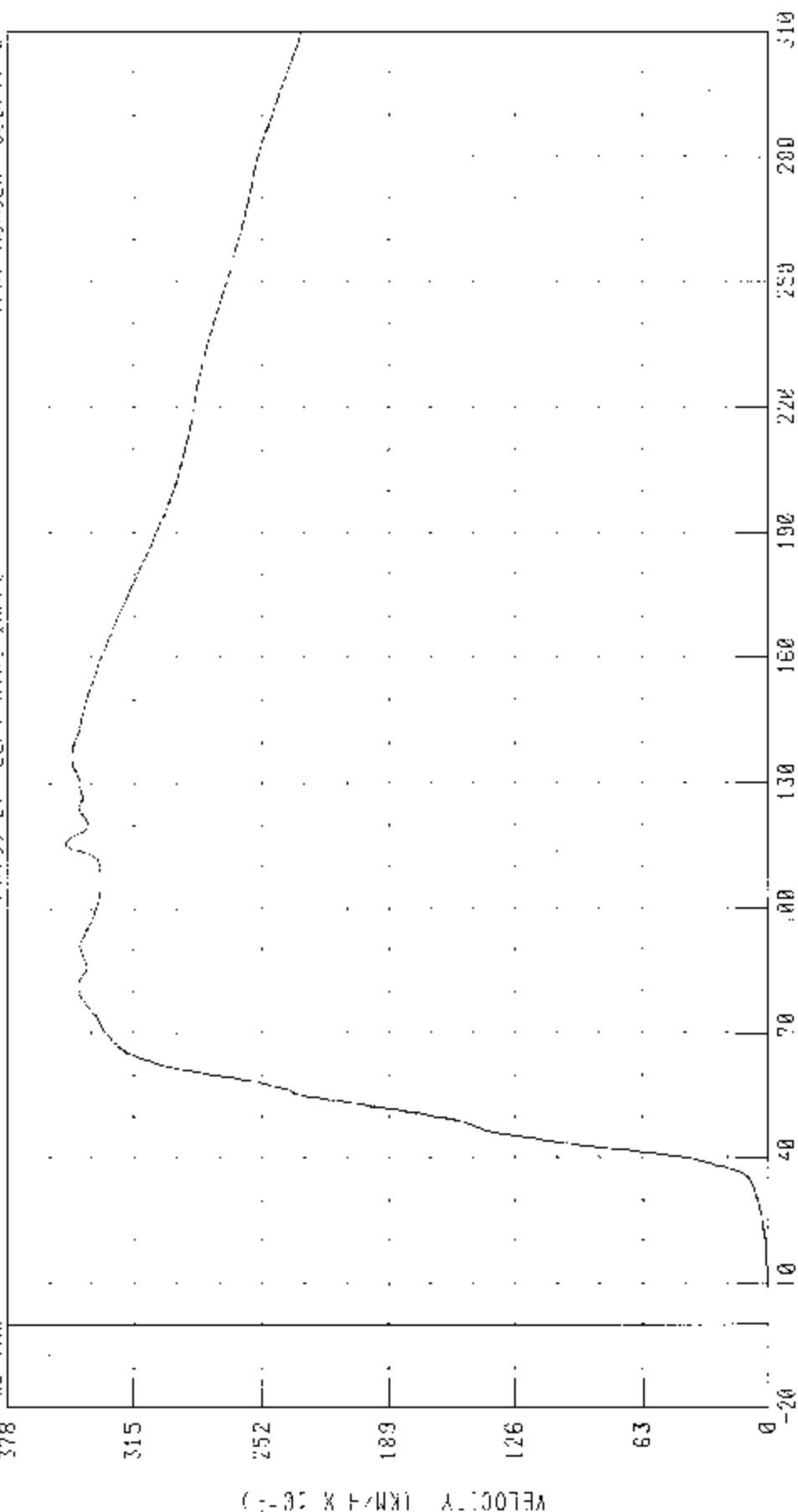
48/24 4PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR PASSENGER LOWER RIB VARIO REDUNDANT VELOCITY

TEST NUMBER 030212 L

FMVSS 214 LEFT SIDE IMPACT

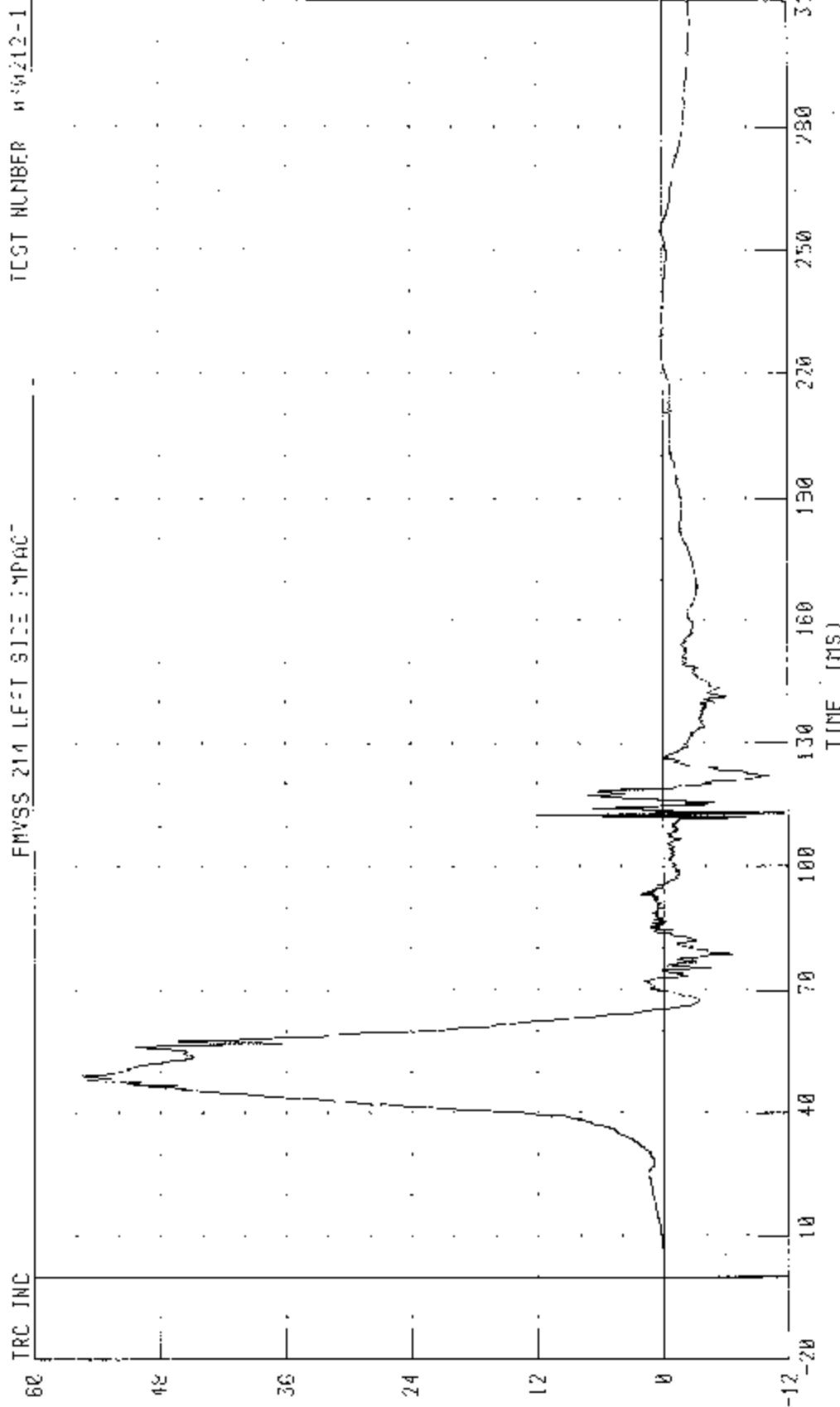
30 INCH



CHANNEL: LIRYUJ FILTER: CH CLASS: 130

PEAK DATA: 34.90 CM/H @ 115.28 MS. 0.00 CM/H @ 0.00 FS

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
LEFT REAR PASSENGER LOWER SPINE Y AXIS REDUNDANT ACCELERATION



PEAK DATA: 55.45 G @ 49.23 MS; -1" BR G @ 113.28 MS

CHANNEL: T12YR4 FILTER: CH. CLASS 1500

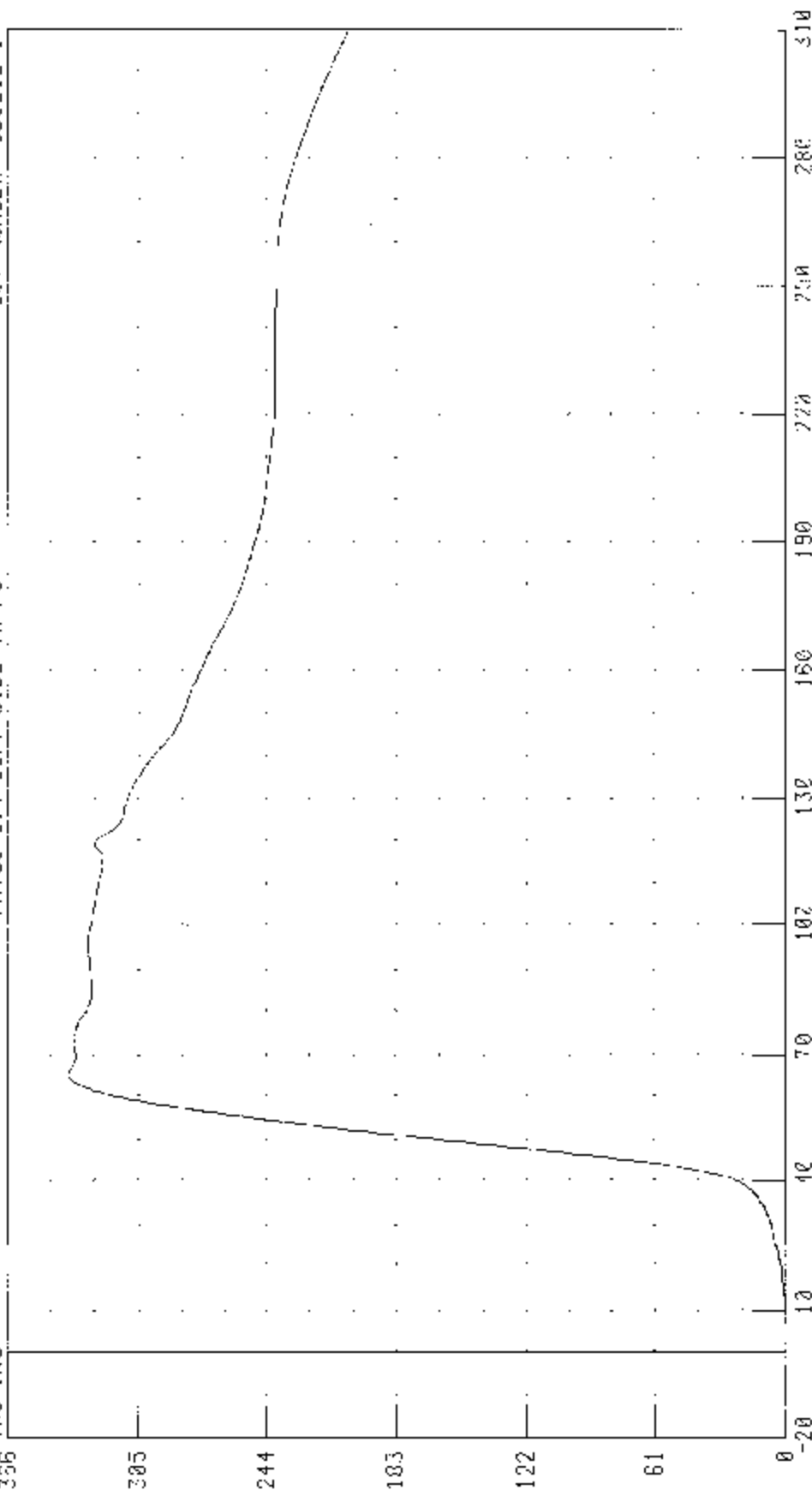
(C) NOT TO BE REPRODUCED

42/24 KPH 30 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 WGT PASSENGER

LEFT REAR PASSENGER LOWER SPINE X-AXIS REDUNDANT VELOCITY

TRC INC FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1

VELOCITY (KPH X 10⁻¹)



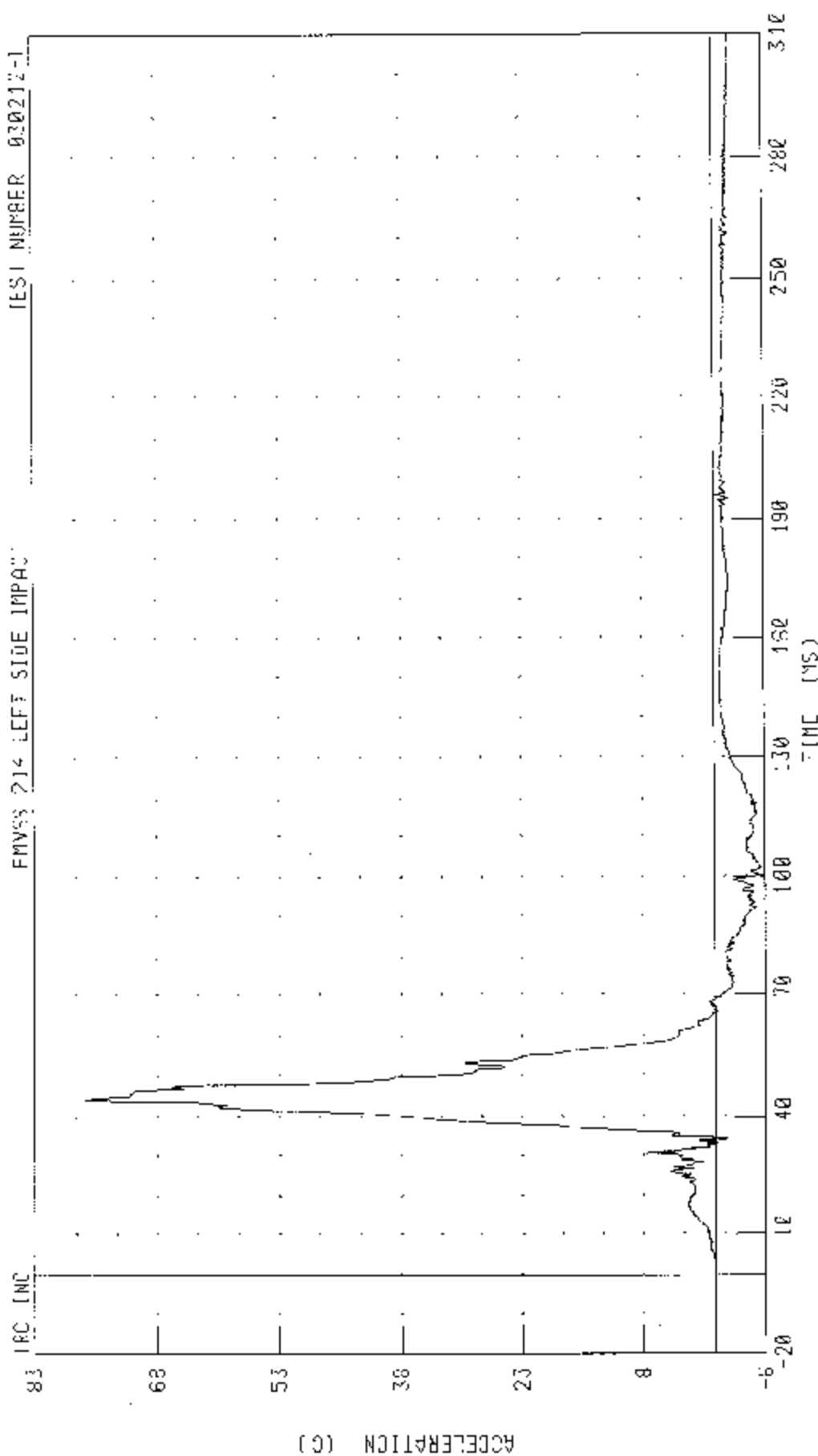
TIME (MS)

CHANNEL: 112YVJ FILTER: 0.1 CLASS 100

PEAK DATA: 33.71 KPH 0.65 20 MS; 0.00 KPH 0.00 0.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 1988 MAZDA PROTEGE 3
LEFT REAR PASSENGER PELVIS Y AXIS REDUNDANT AMPLIFICATION

IRC INC FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL: FEVYR4 FILTER: CH. CLASS 1000

PEAK DATA 77.07 G @ 41.72 MS, -5.68 G @ 192.08 MS

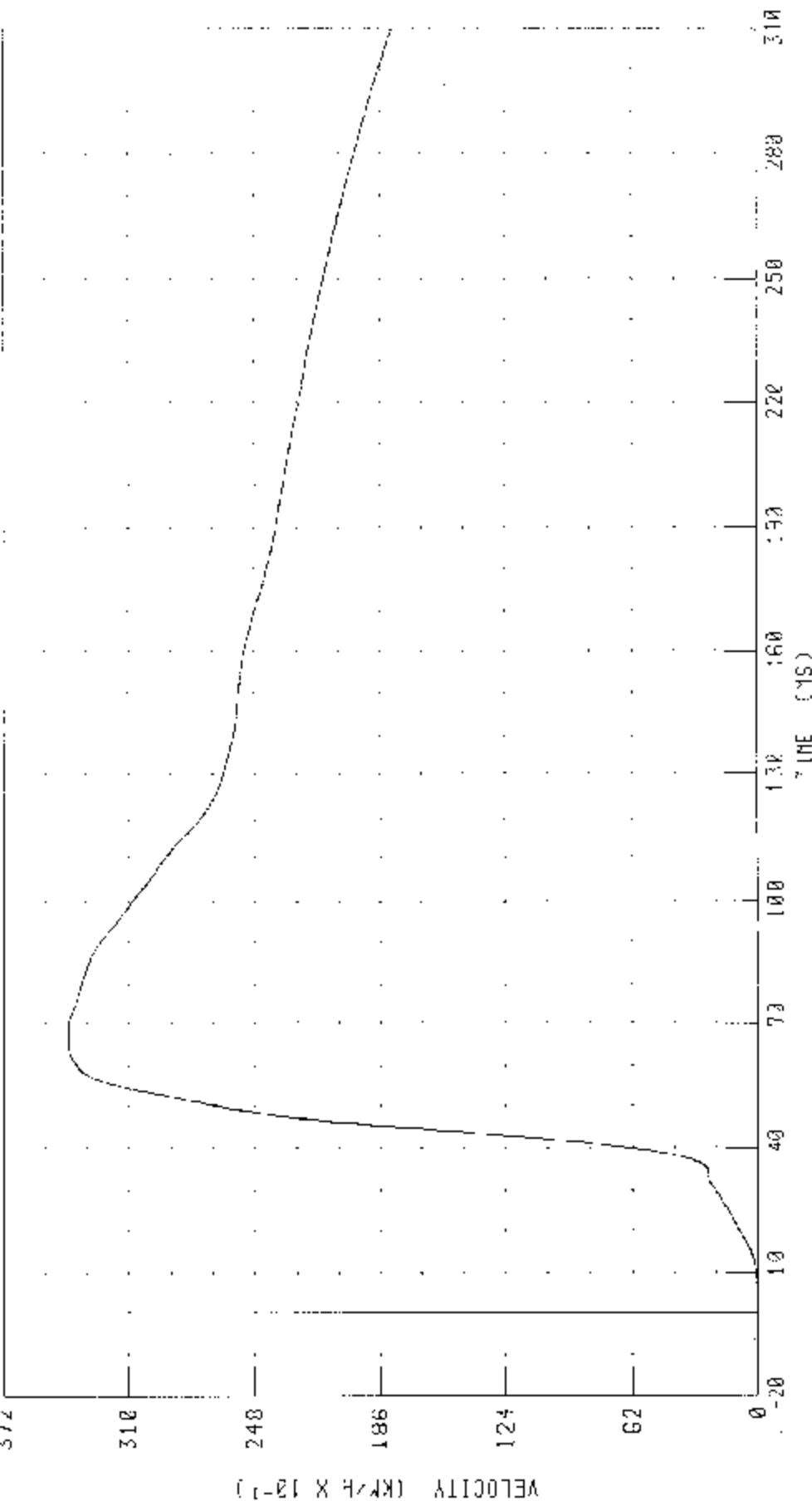
48/24 KPH 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE CARRIER) INTO LEFT SIDE OF 2000 KAZOO PROUD

LEFT REAR PASSENGER PHYSIS X-AXIS REDUCED VELOCITY

FYSS 214 LEFT SIDE IMPACT

30 INC

TEST NUMBER: K0212-1



Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

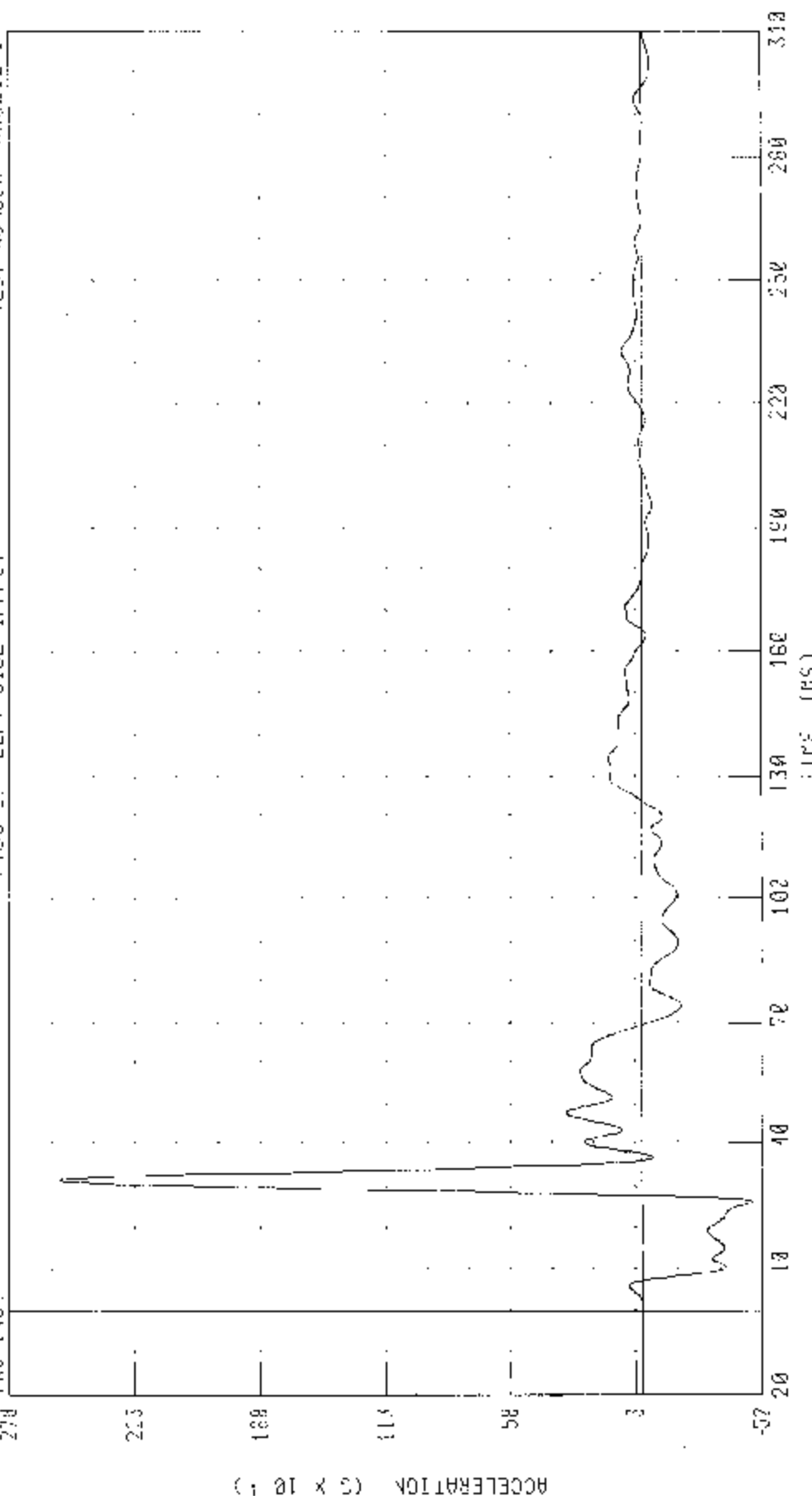
Integration Data - Filter Class 180

43/24 MPH 90 DEGREE STIFF IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 1970A PROTEGE 5

RICH SUP- 5011 41 FRONT SEAT X-AXIS ACCELERATION

TEST NUMBER W30212-1

TRC INC.

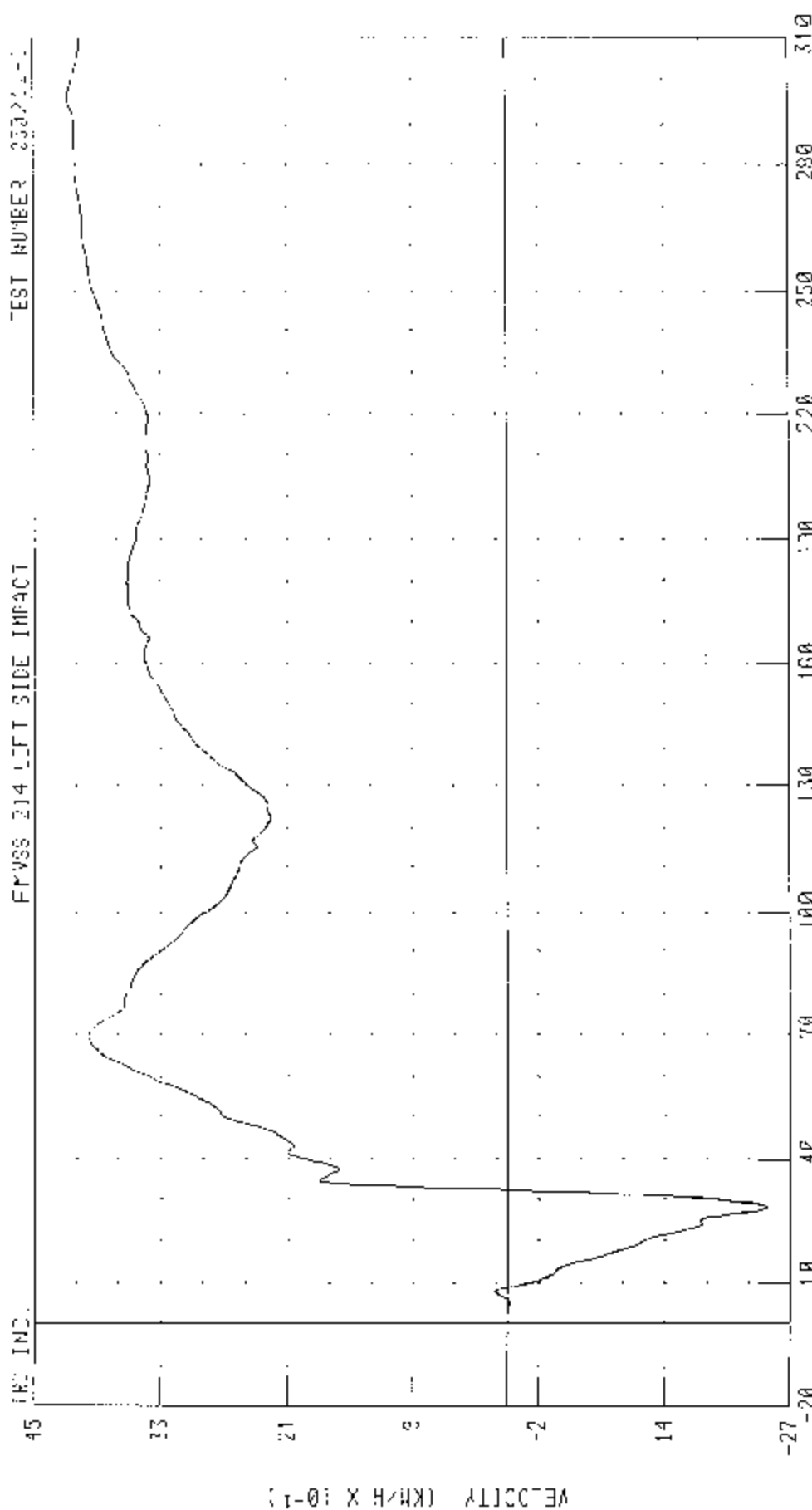


CHANNEL RICHG1 FILTER C- CLASS F2

PEAK DATA: 25.00 @ 31.84 MS, -4.78 @ 6.28 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 YAZDA PROTEGE S

RIGHT SIDE GILL AT FRONT SPOT X-AXIS VELOCITY



CHANNEL: RFSXY1 FILTER: CH CLASS: 180

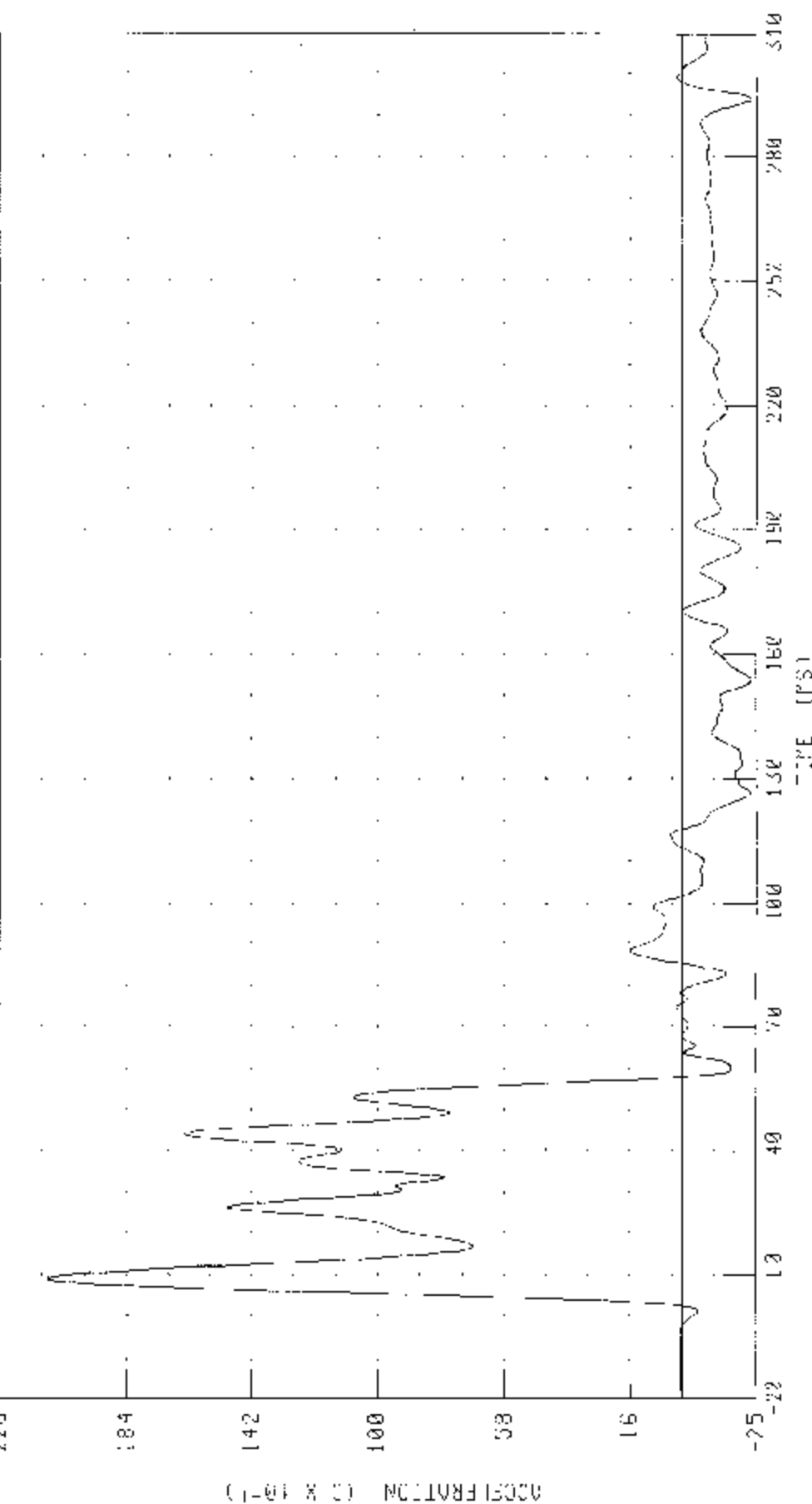
PEAK DATA: 4 17 CM/H @ 295.62 MS, -2.49 CM/H @ 28 24 MS

48/24 KPH 20 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2001 FORD PROTEGE S

RIGHT SIDE S11 AT FRONT SEAT Y-AXIS ACCELERATION

TEST NUMBER: 330212-1

TRC INC. PAGES 214 LEFT SIDE IMPACT

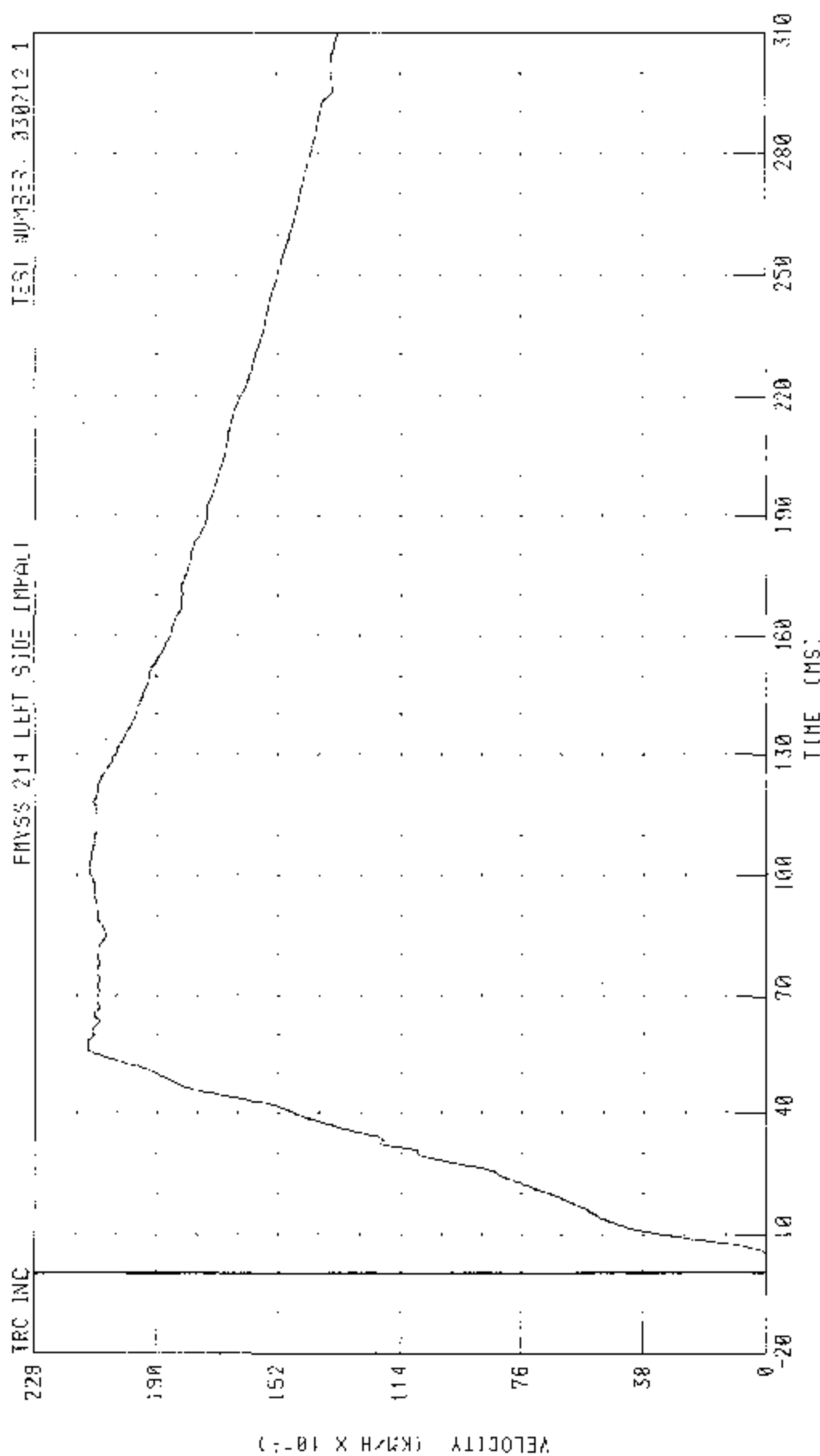


CHANNEL: RFSY01 FILTER: CH CLASS: 00

PEAK DATA: 21.10 5.0 0.20 10. 2.34 3.0 203.84 48

48/24 KPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



CHANNEL: RFSV1 FILTER: CH CLASS 182

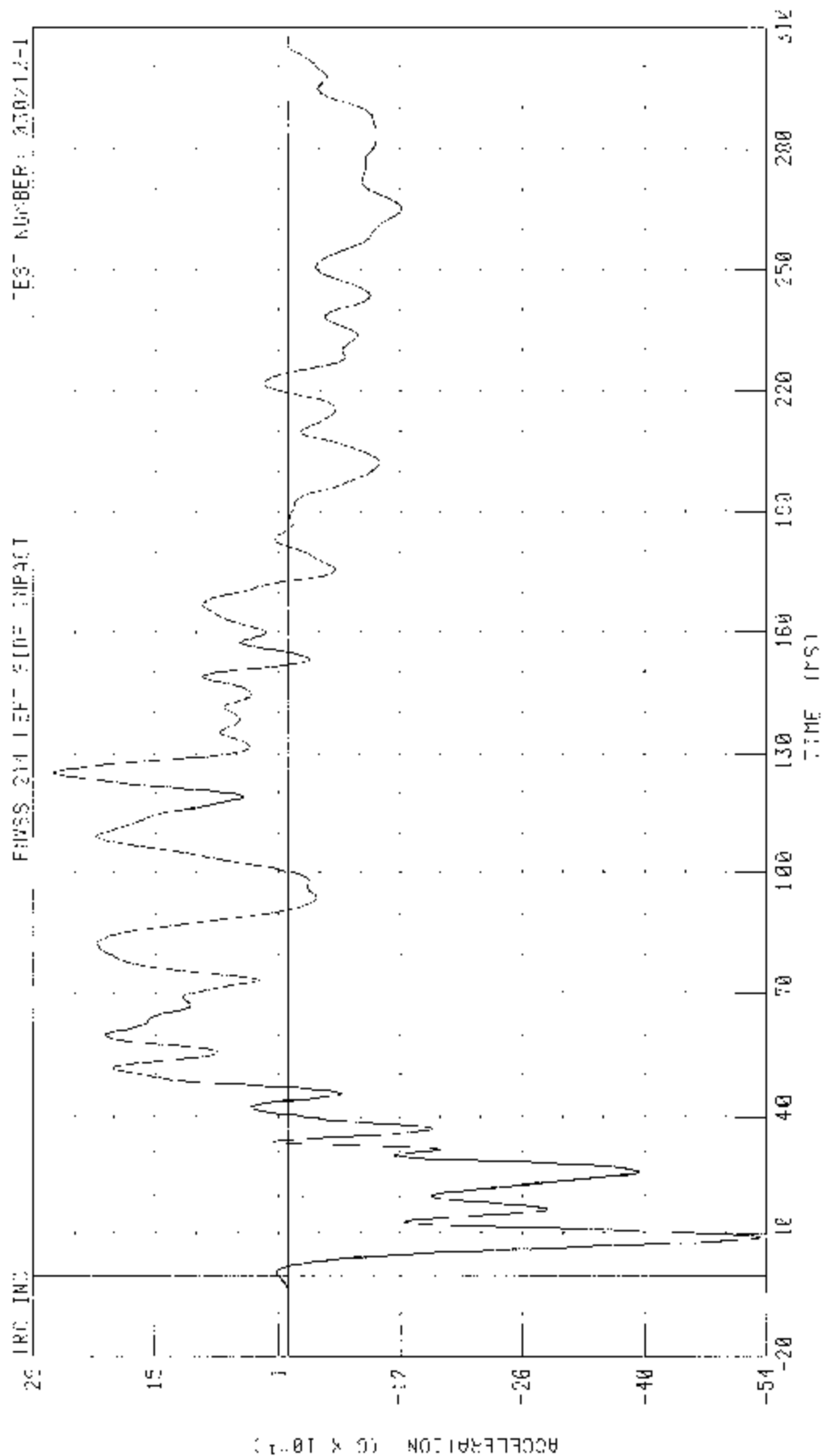
PEAK DATA 2118 KM/H @ 57.20 MS; -0.81 KM/H @ 4.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) DATA FILE 500- 05 2003 HAZCO PROJECT 2

RIGHT SIDE STILL 4 FRONT SEAT Z-AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 200212-1



CHANNEL: RF320 FILTER: CH CLASS 60

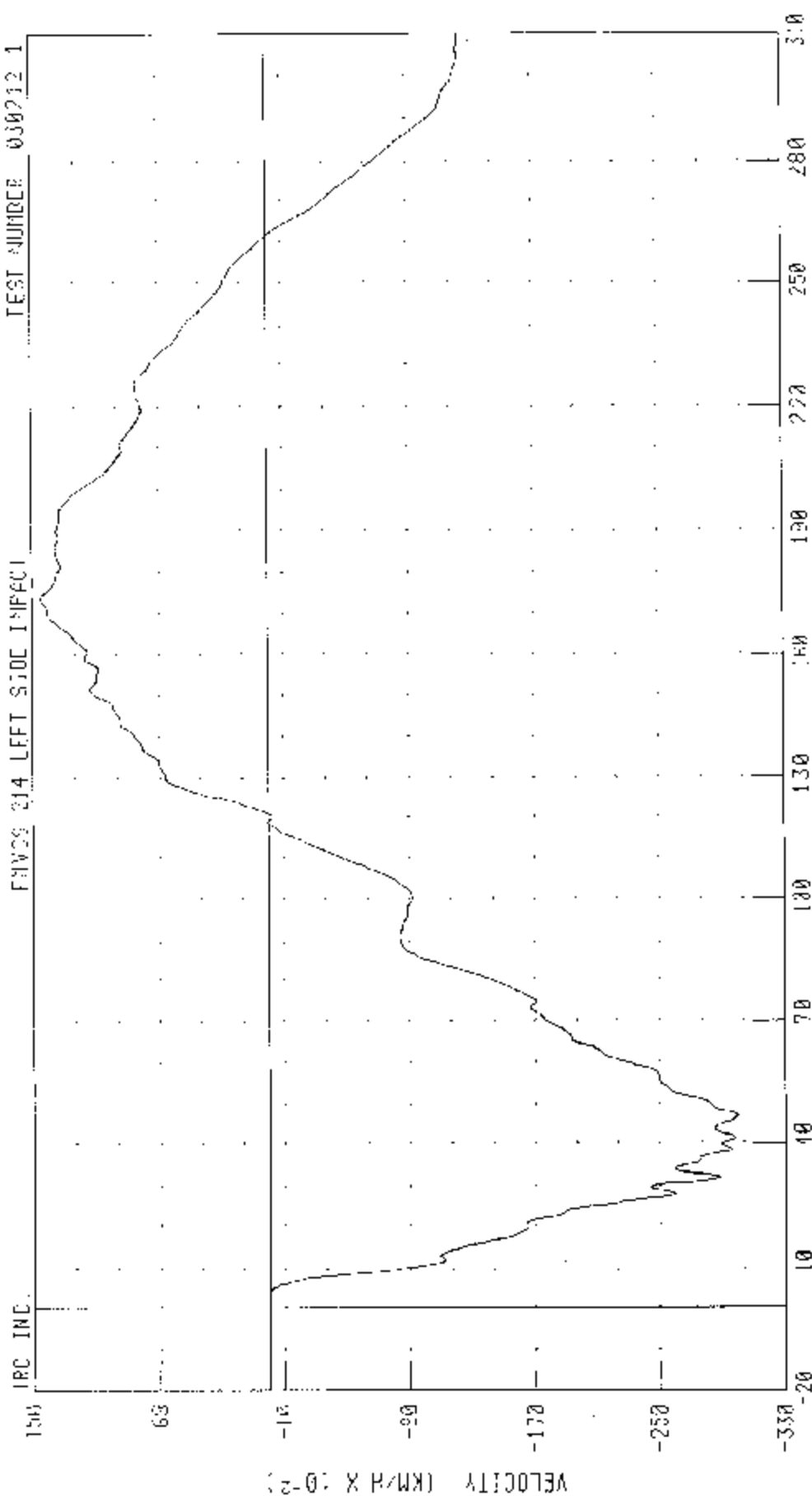
PEAK DATA: 2.68 G @ 125.28 MS, -5.44 G @ 8.80 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

TEST NUMBER 030212-1

PHYS 014 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 1.45 21/1 0 17.3 20 MS. 2.99 41/1 0 16.96 MS

CHANNEL RFSZY1 FILTER CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMOR = RIGID FB (INTO LEFT SIDE OF 2000 PLYUP PROJECT 5

RIGID SIDE STILL AT FRONT SEAT RESULTANT ACCELERATION

TEST NUMBER 330212-1

FRONT 214 LEFT SIDE IMPACT

TRC INC

300

250

ACCELERATION (G X 10⁻¹)

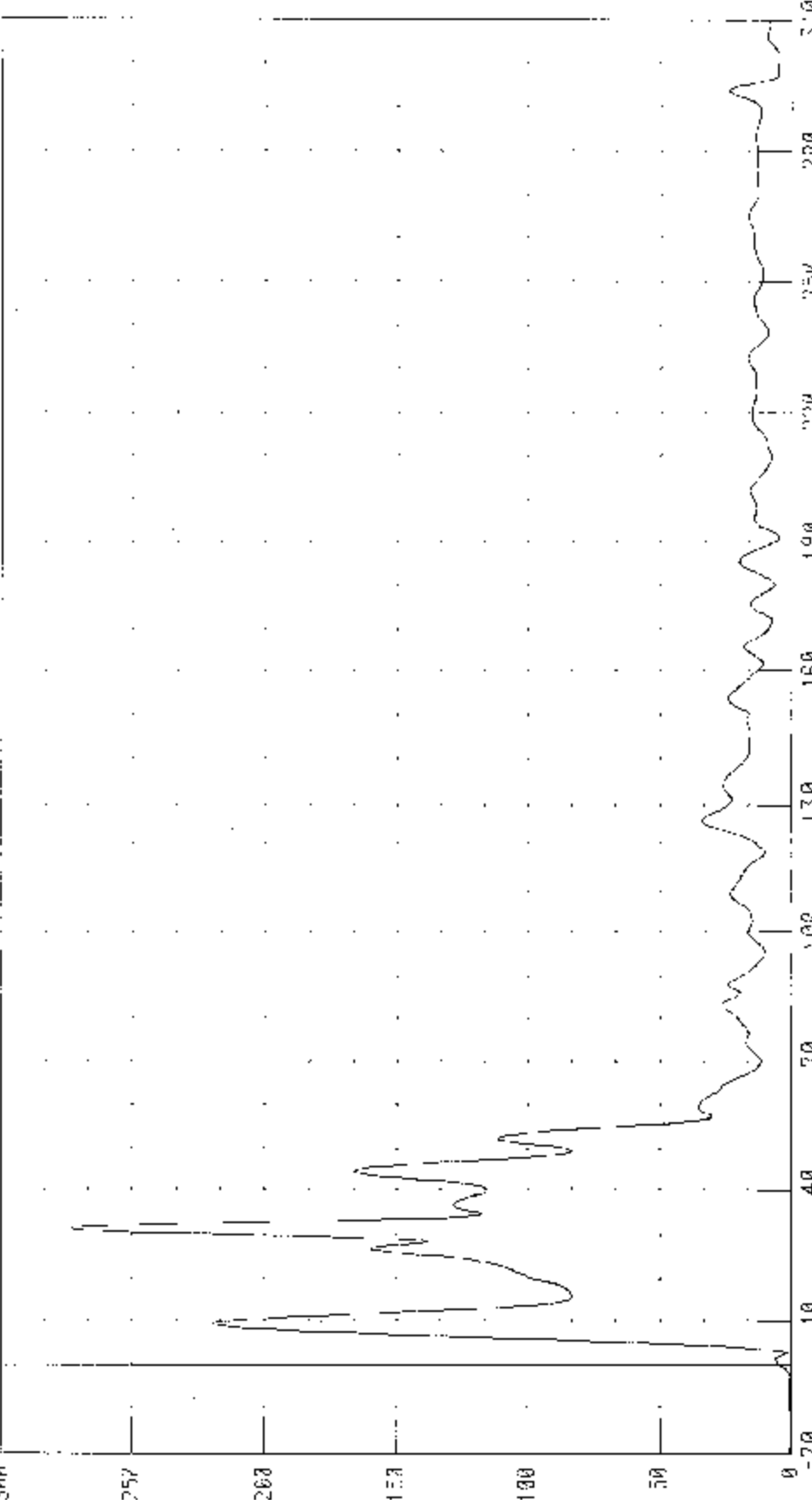
B-49

030212-1

CHANNEL REFRC: FILTER: CH CLASS 50

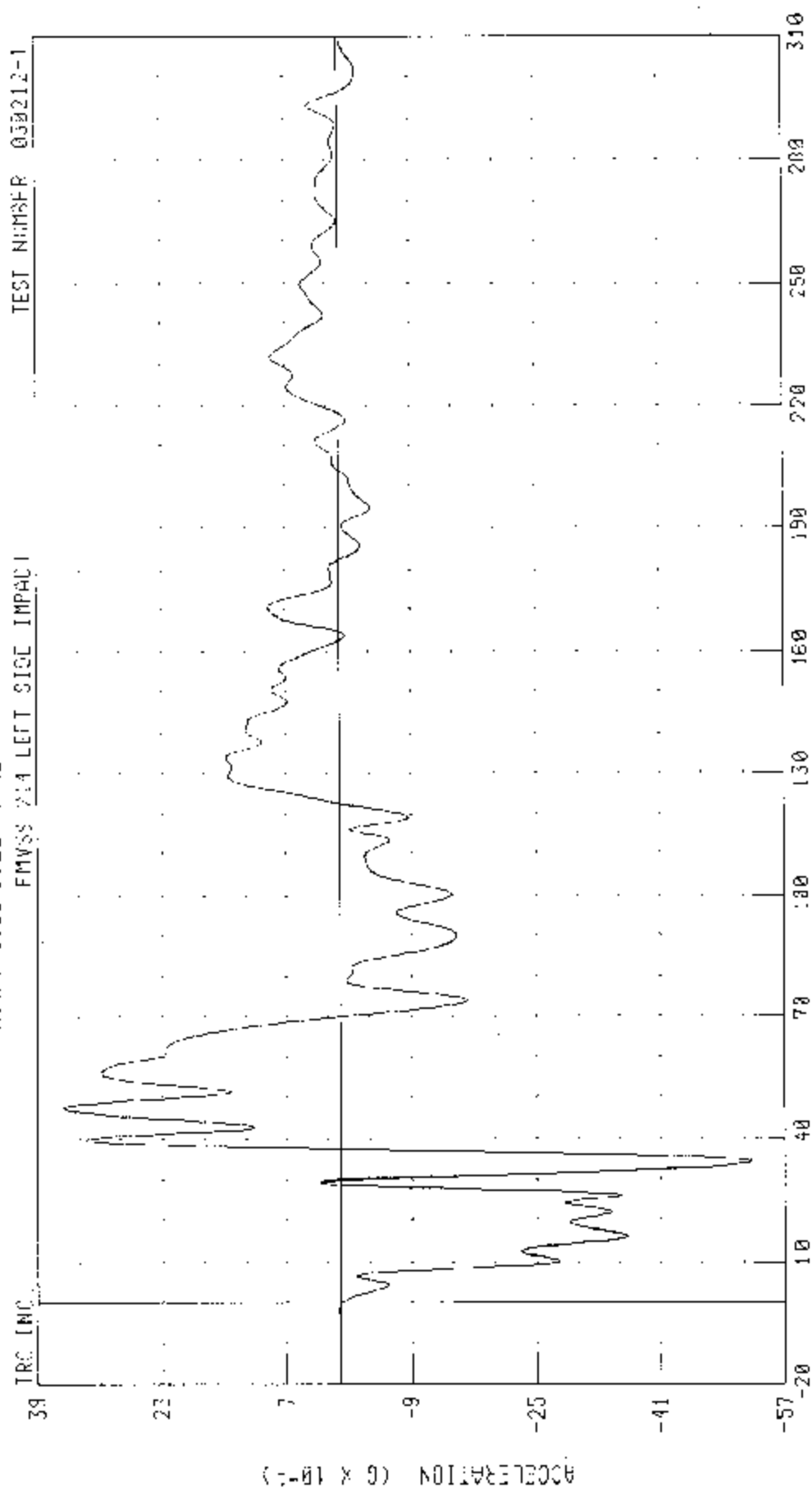
TIME (MS)

PEAK DATA: 27.27 G @ 51.76 MS, 0.01 G @ -18.00 MS



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2023 NCDOT BRIDGE 5

RIGHT SIDE SILL AT REAR SEAT X-AXIS ACCELERATION



CHANNEL: RREXC: FILTER: CH. CLASS 00

PEAK DATA: 5 50 0 0 47.52 MS. -5 27 0 0 33.92 MS

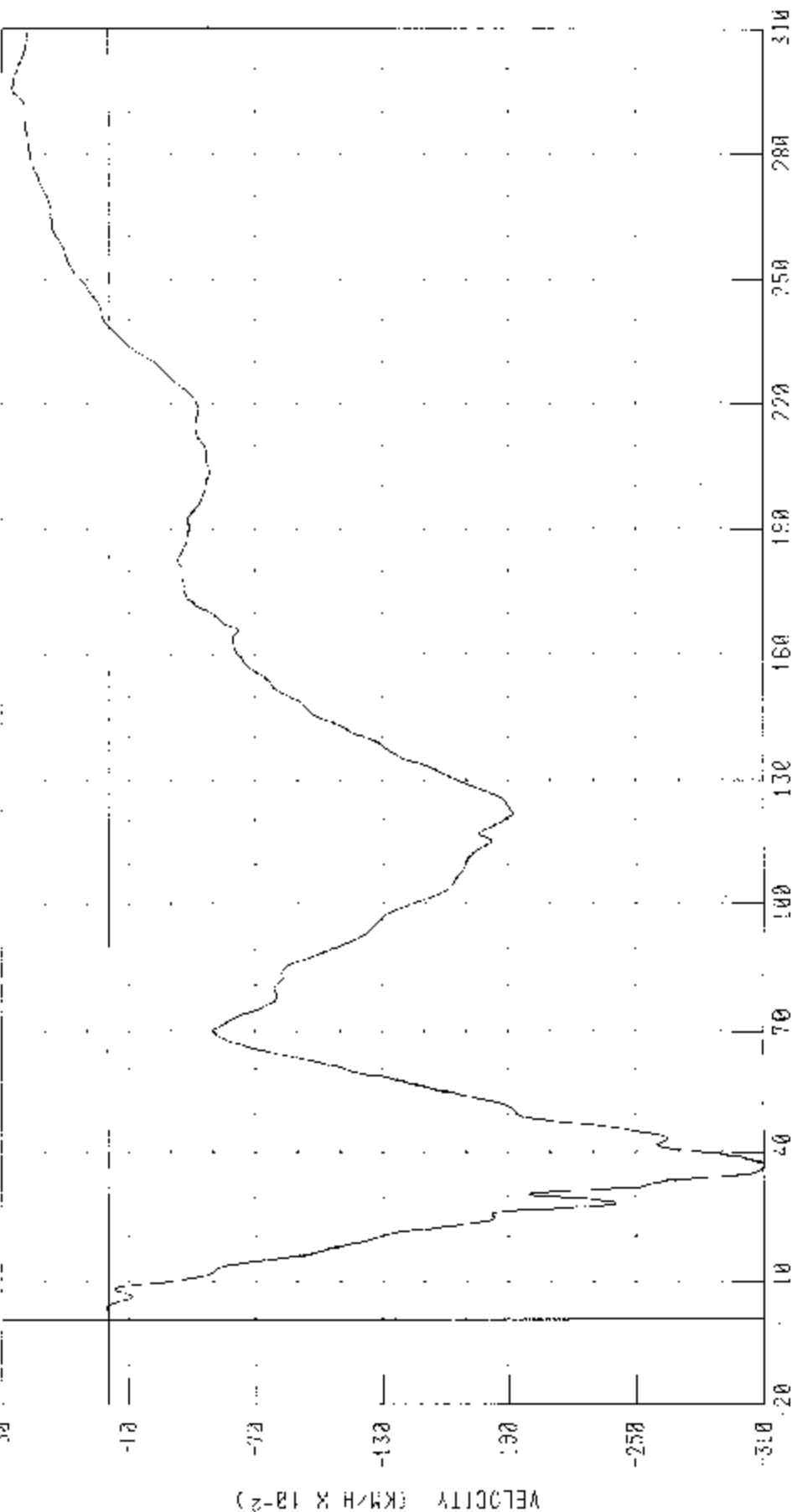
48/24 P211 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 P2234 PROTEGE 5

RIGHT SIDE S1... FI RFR 3-P X-EX'S V-100 Y

FMVSS 214 LEFT SIDE IMPACT

IFSI SUMMER 930212-1

50 IRC INC.



TIME (MS)

PEAK DATA: 0 40 KM/H @ 205 20 MS, 3 12 KM/H @ 27.20 MS

CHANNEL R38XV1 FILTER: CH. CLASS 180

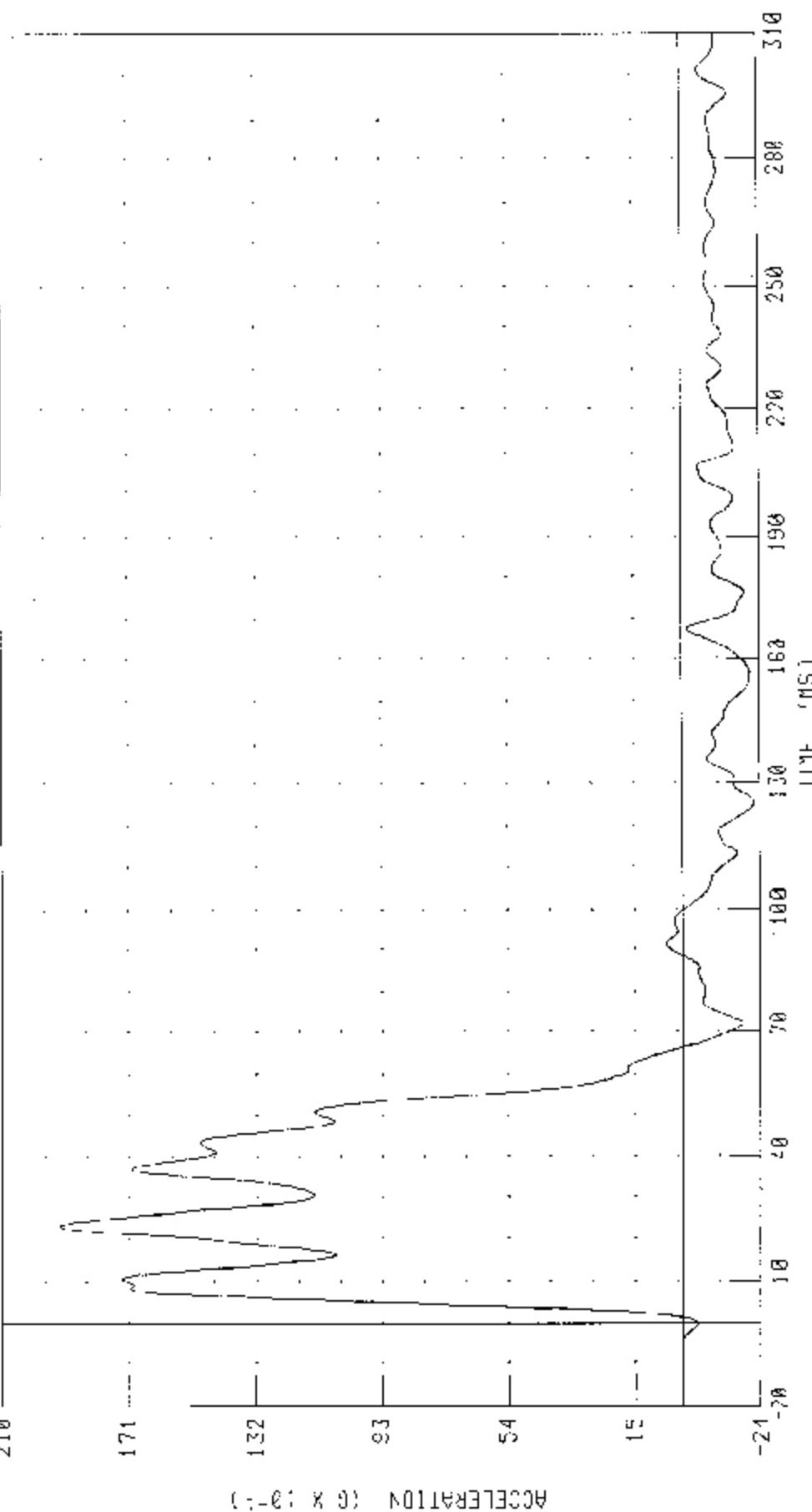
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMER F BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC 142



PEAK DATA: 19.24 G @ 23.52 MS, -7.24 G @ 125.28 MS

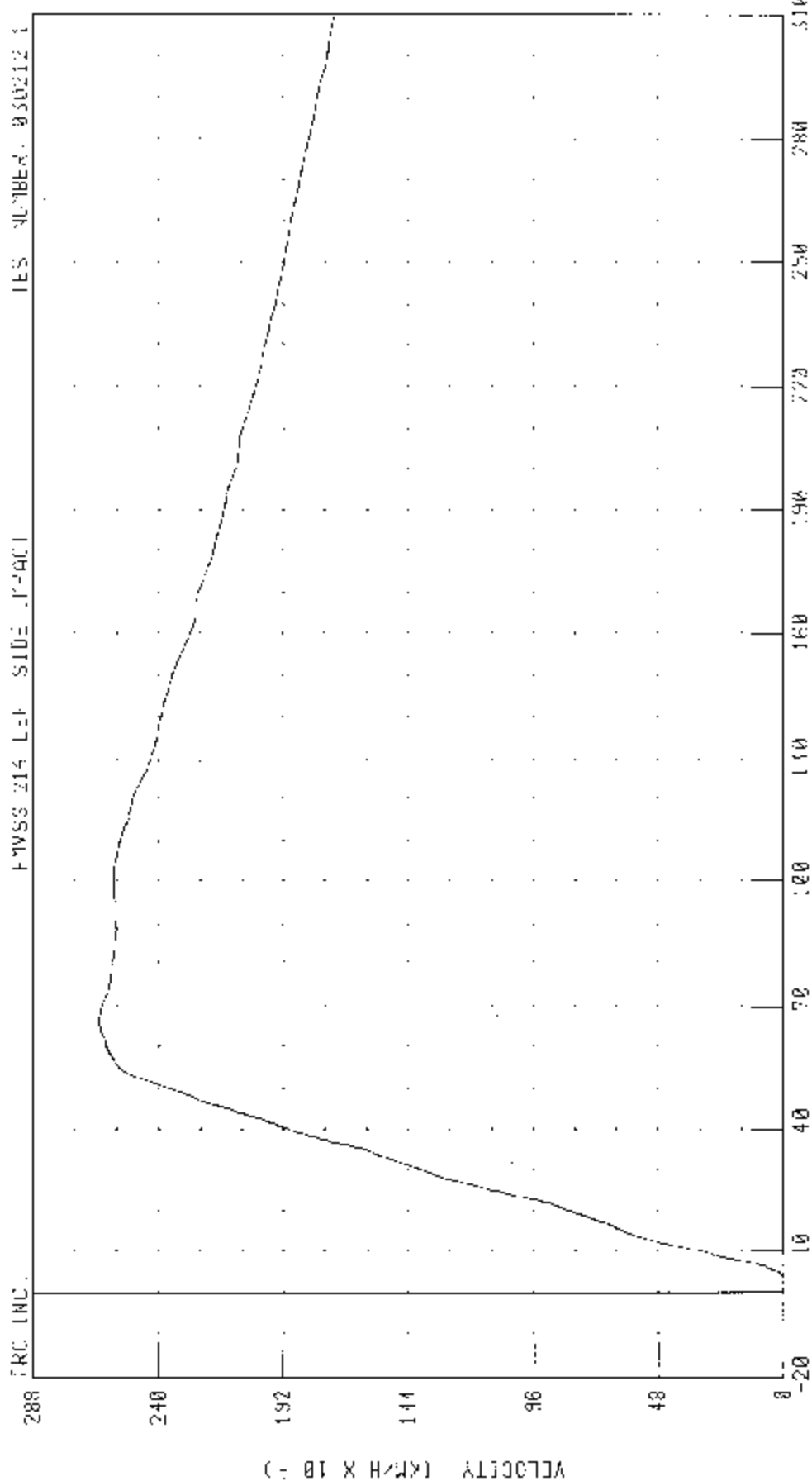
CHANNEL HRSYC1 FILE: CH CLASS 60

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING OFFENDER, F BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTEGE 3

RIGHT SIDE SILL AT REAR SEAT Y-AXIS VELOCITY

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT



VELOCITY (KPH X 10⁻³)

030212-1

B-53

CHANNEL: RRSY71 FILTER: CH CLASS 100

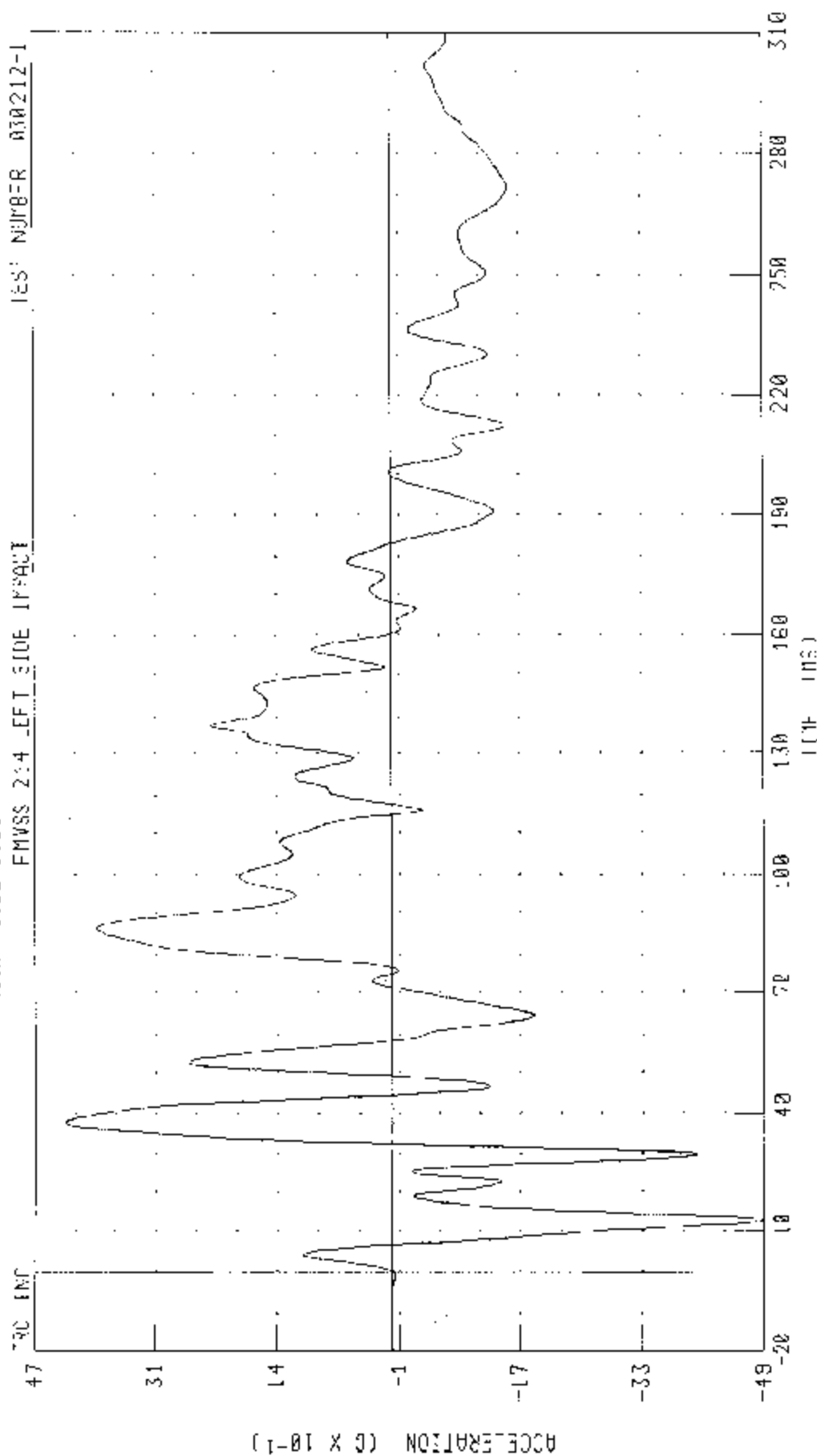
TIME (MS)

2003 MAZDA PROTEGE 3 2003 MAZDA PROTEGE 3 2003 MAZDA PROTEGE 3

48/24 KPH 00 DEGREE SIDE IMPACT (MOVING IMPERMEABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL BRSCG: FILTER: CH. CLASS 00

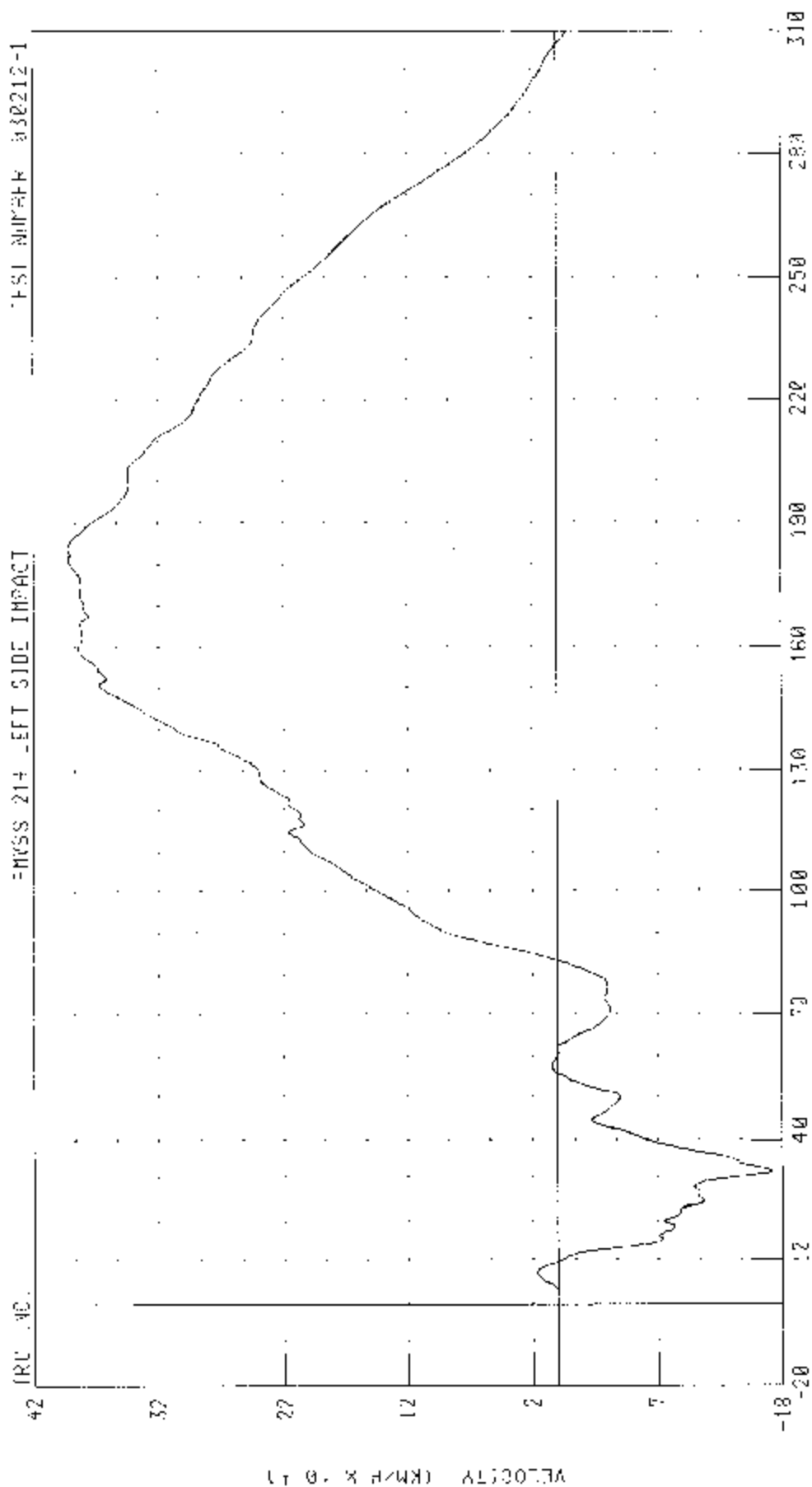
PEAK DATA: 4 31 0 0 37.84 MS, -4 35 0 0 13 24 MS

18/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PRO EDE 5

VIC II SIDE SILL AT REAR SEAT 7-AXIS VELOCITY

TEST NUMBER W30212-1

FMSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL RB2V1 FILTER CH CLASS 130

PEAK DATA: 396 CM/H @ 103.02 MS, -1.72 CM/H @ 31.76 MS

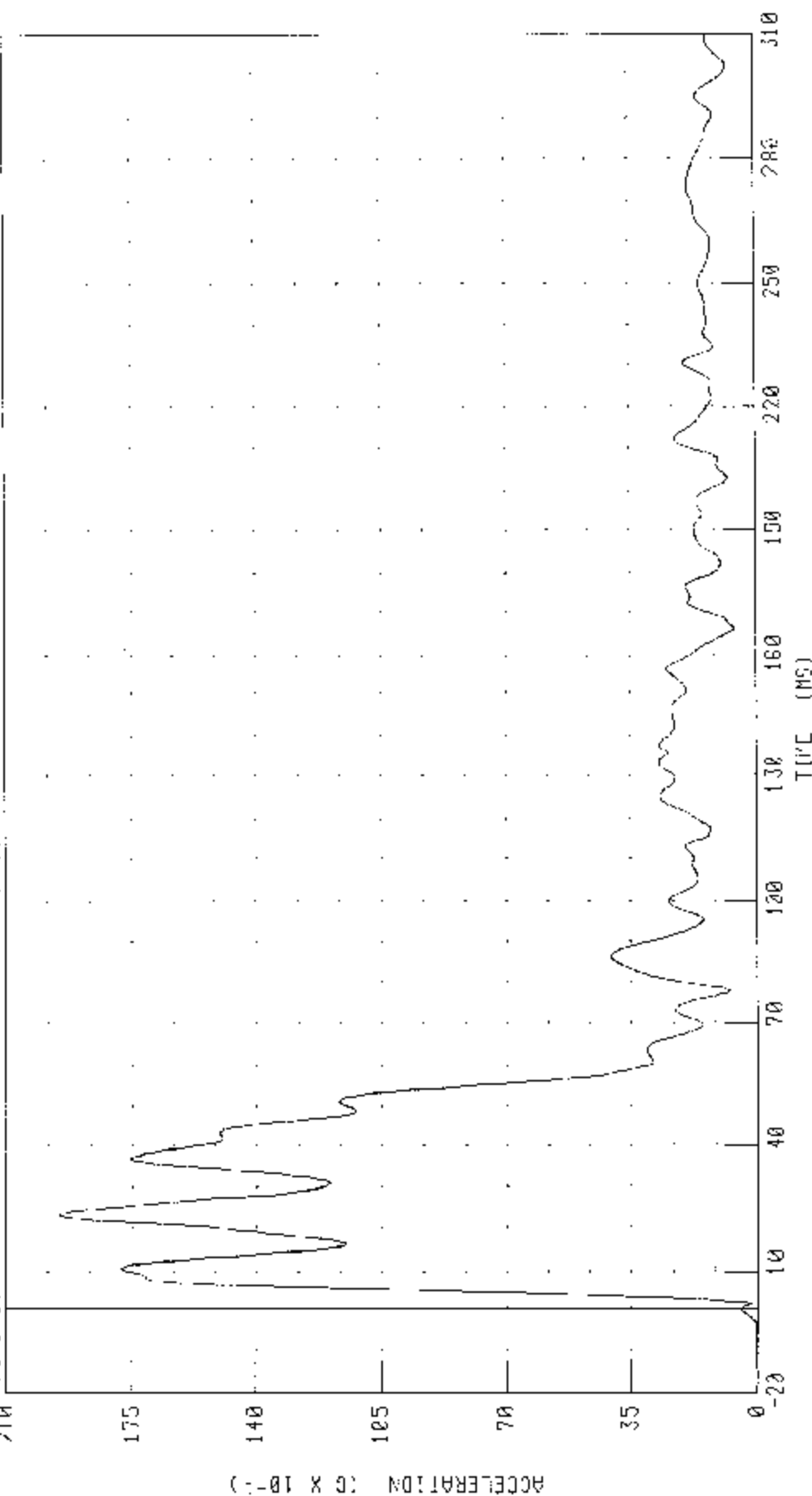
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE PARTNER) INTO LEFT SIDE OF 2003 *42DA PRUVEE 5

RIGHT SIDE STILL AT REAR SEPT RESUL'ONT ACCELERATION

TRC INC.

CRVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL : RRRC1 FILTER CH CLASS 60

PEAK DATA: 10 53 3 @ 73 44 MS, 0 81 0 @ -17.20 MS

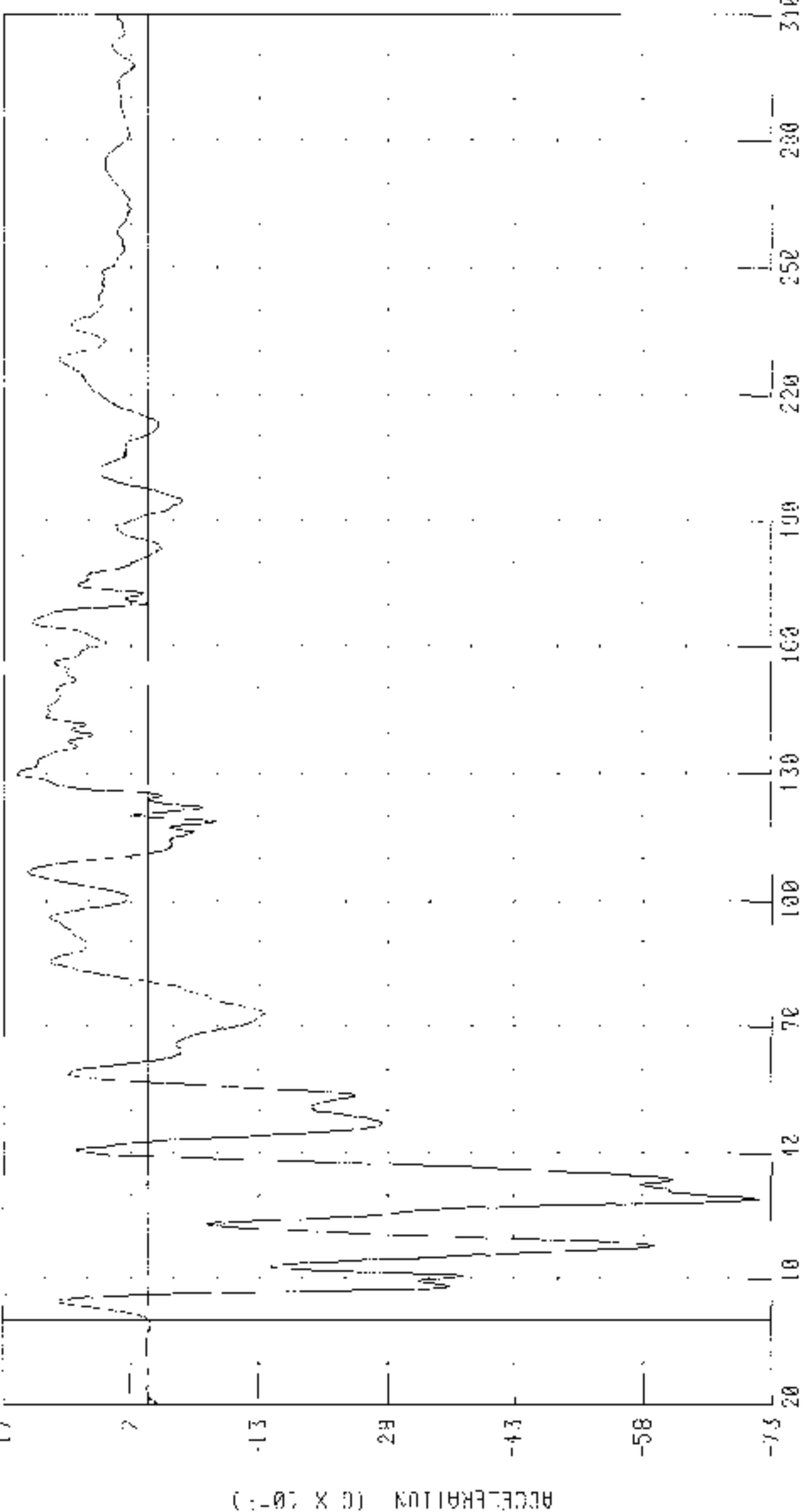
40/24 KPH 90 DEGREE SIDE IMPACT (DURING DEFORMATION OF BARRIER) AND LEFT SIDE OF 3300 HAZARD PROFILE 5

REFR FLUOROPAN ABOVE AXLE X AXIS ACCELERATION

TRC INC

FRSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL - REXG1 FILTER -1 CLASS 50

FLAK DATA 1 55 0 0 150 16 MS, -7 15 0 0 28 20 MS

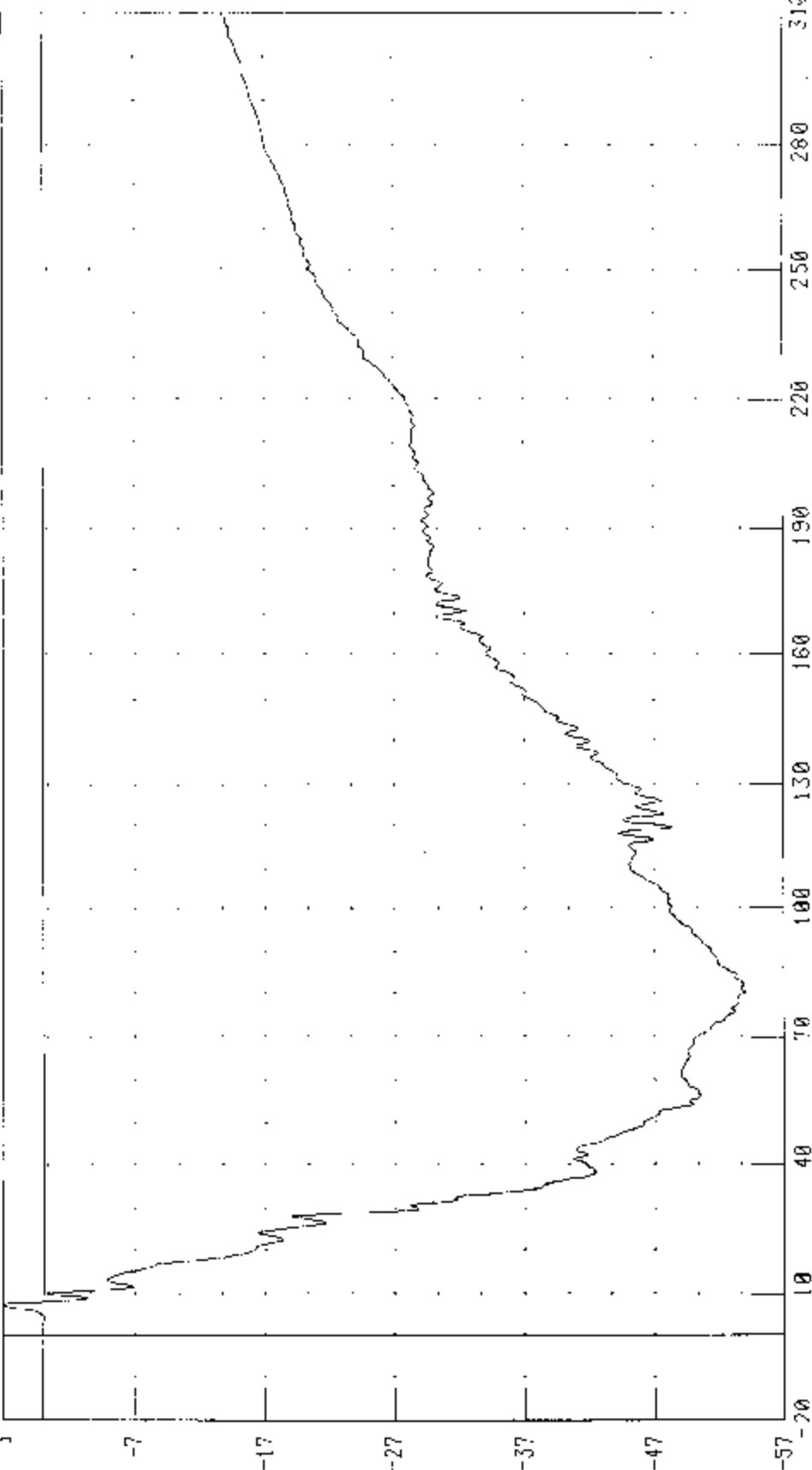
43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZOP PROTEGE 5

BEHR F_JORPAN 400VC AXLE X-CX(S WHIC)Y

TEST NUMBER 030212-1

PNVSS 214 LEFT SIDE IMPACT

TRC INC

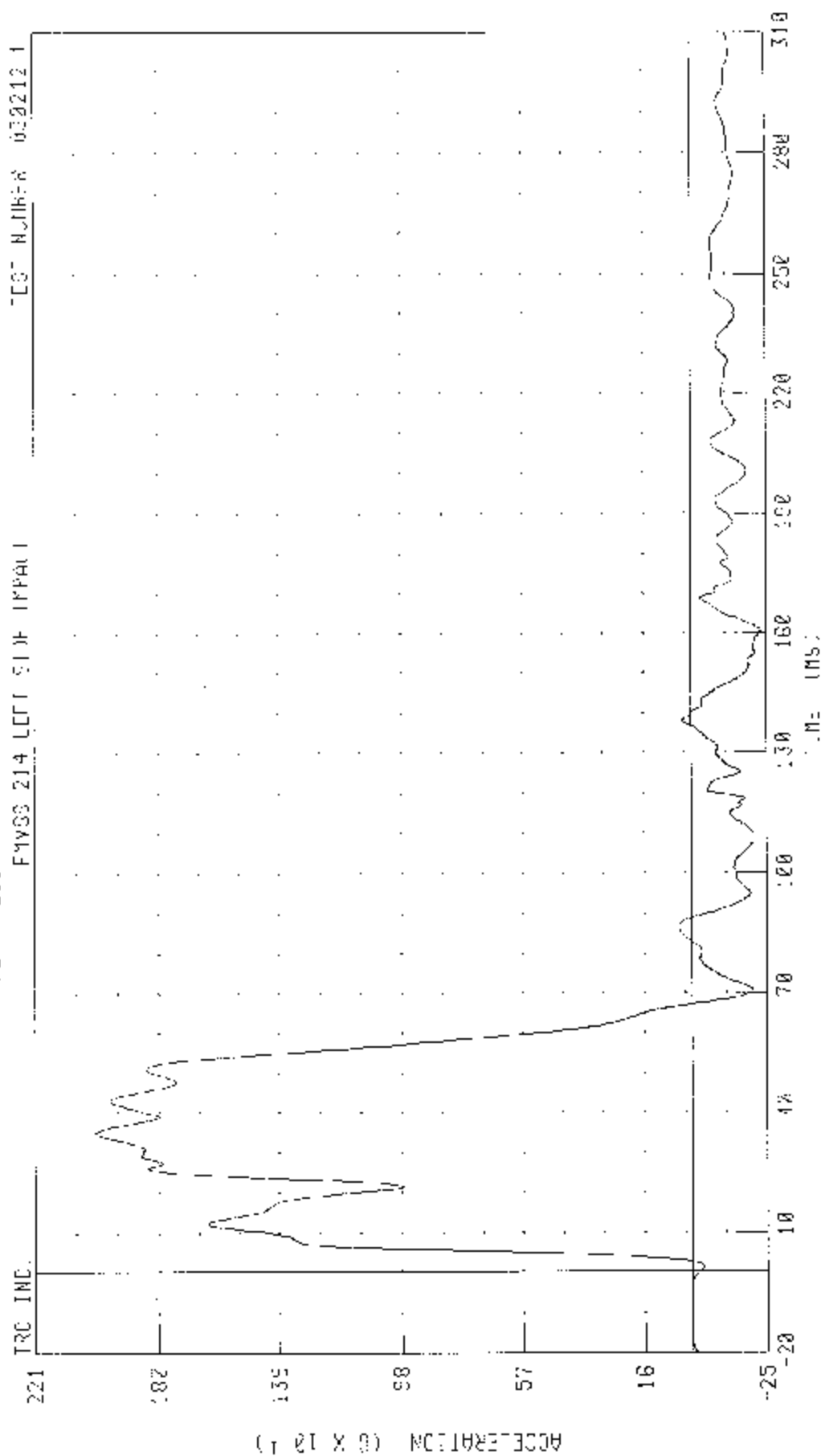


CHANNEL: HDKXY: FILTER: CH. CLASS 180

PEAK LA 9: 0.52 CM/H @ 6.95 MS; -5.41 KPH @ 88.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) (N1) LEFT SIDE OF 2003 HAZUDR PROJECT 5

REAR FLOORPDM ABOVE AXLE X AXIS ACCELERATION



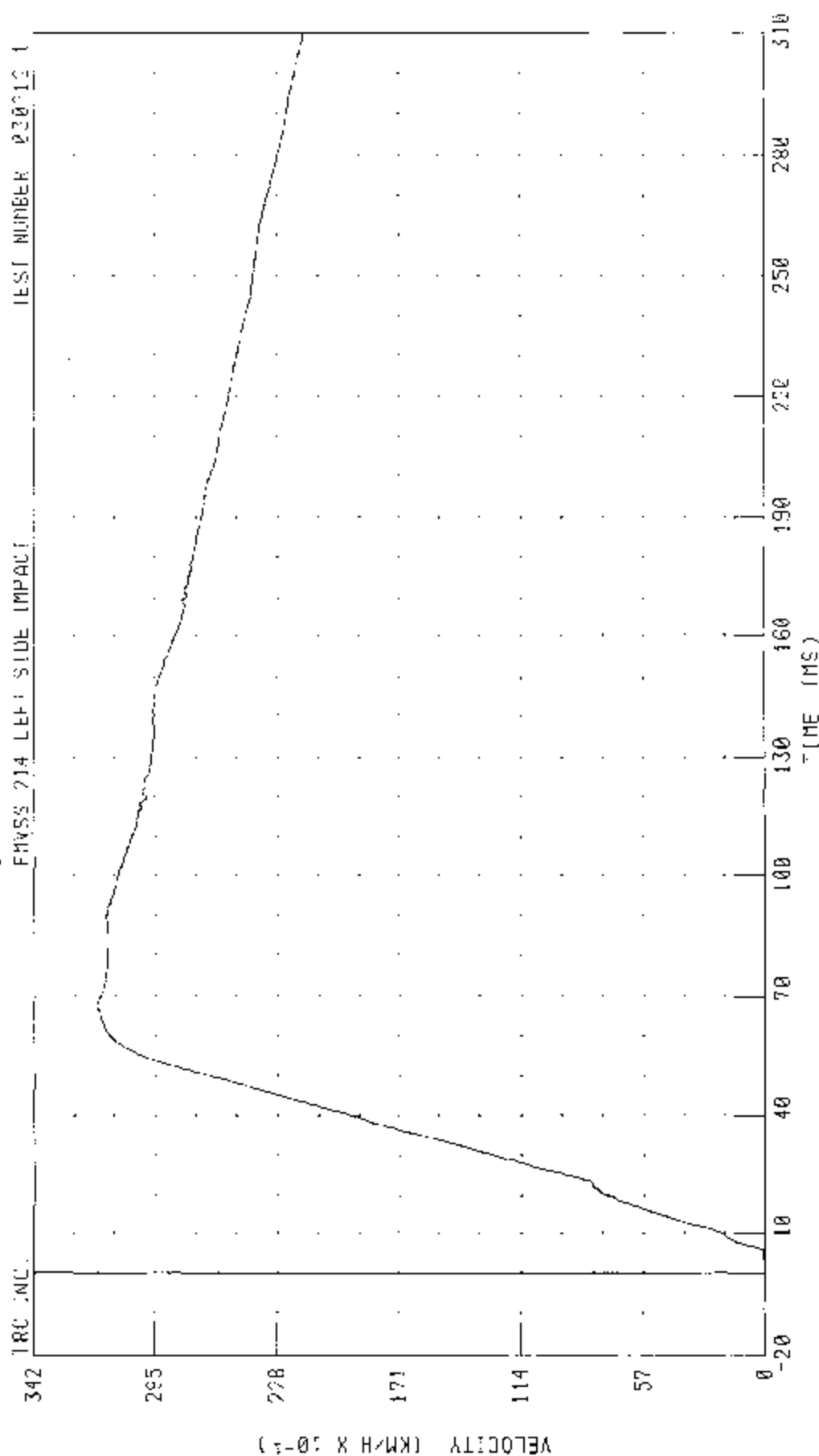
CHANNEL RDKYC1 FILTER CH. CLASS 00

PEAK DATA 20 11 0 34.96 MS, 2.32 0 0 180 72 75

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

REAR FLOORPAN ABOVE AXLE Y-AXIS VELOCITY

PHASE 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



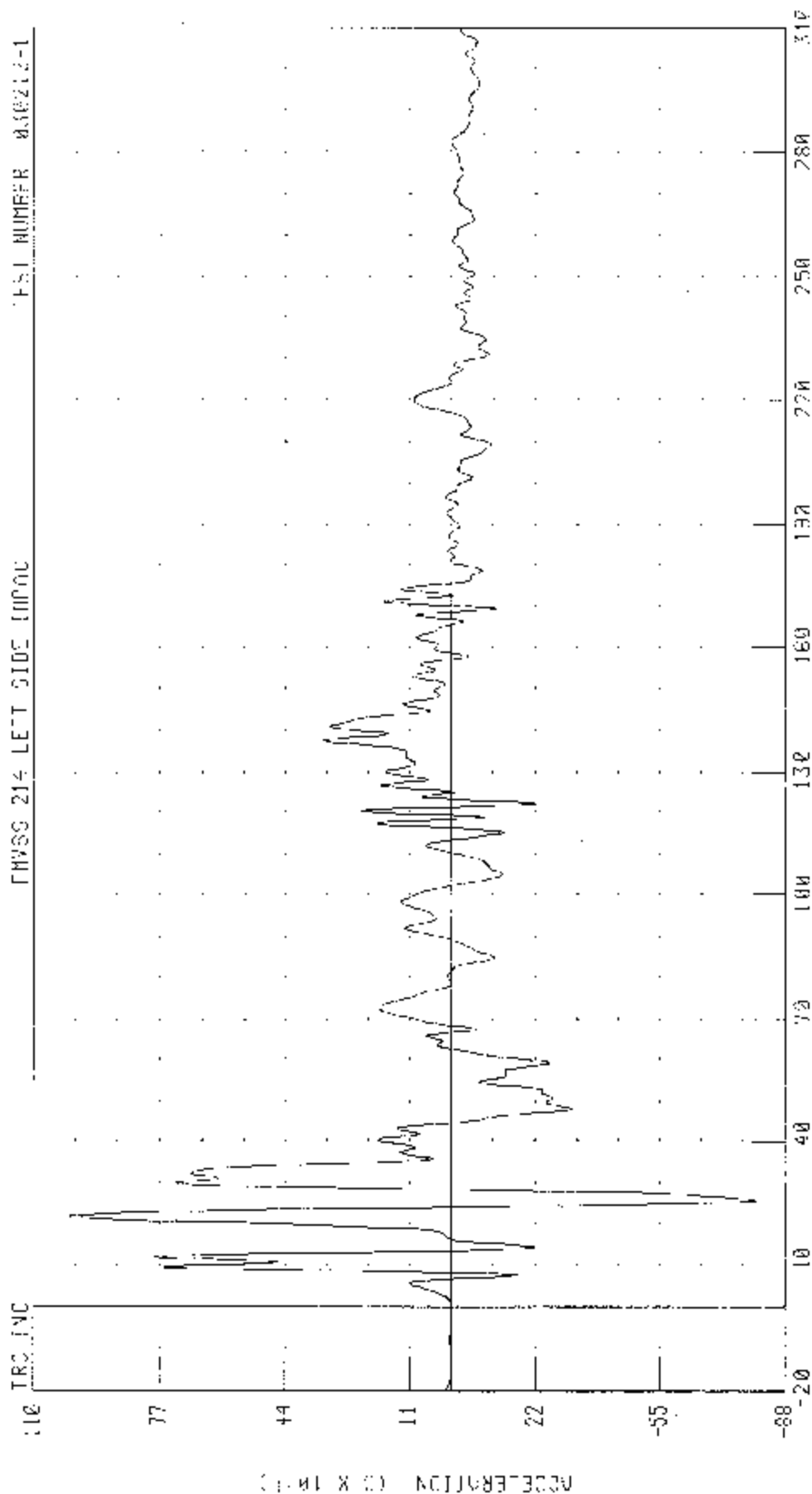
CHANNEL: ROKYV1 FILTER CH. CLASS 180

PEAK DATA: 31 20 (M/V) @ 07.20 MS, 0 00 KPH @ 0 00 MS

40/24 KPII 00 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER IN LEFT SIDE OF 2X2 KAZDA FROTH 5

RACE - CORPAN ABOVE 2X2 7-AXIS ACCELERATION

TRC INC FHVSS 214 LEFT SIDE IMPAC FSI NUMBER 030212-1



TIME (MS)

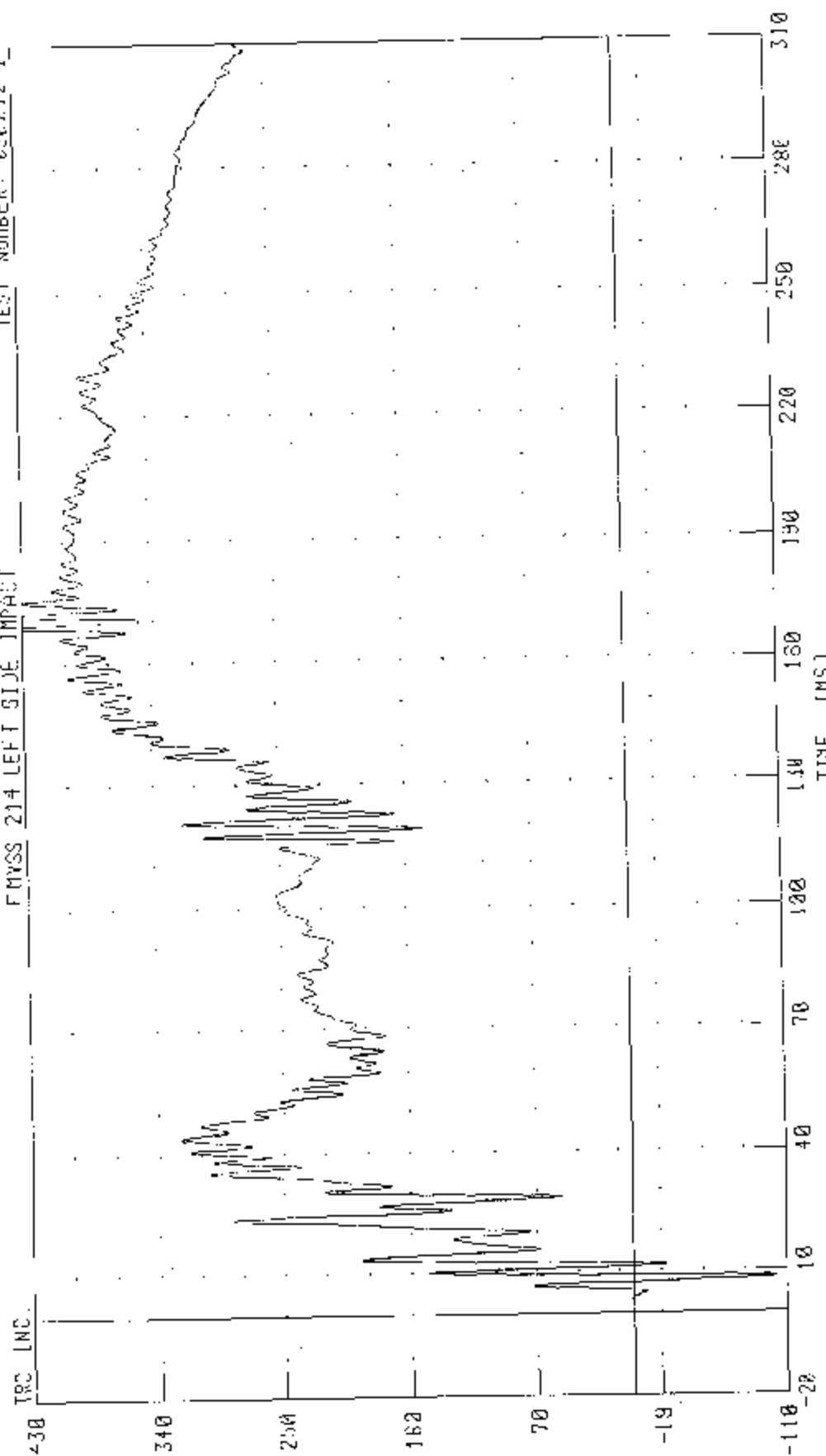
CHANNEL RDZG1 FILE 58-04 CLASS 60

PEAK DATA: 10.07 C @ 21.53 MS; -0.05 C @ 25.53 MS

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 HAZARD PROTECT 5

REAR FIDUCIAL ABOUT AXIAL Z-AXIS VELOCITY

TEST NUMBER: 030212-1



CHANNEL FDKZV1 FILTER CH. CLASS 180

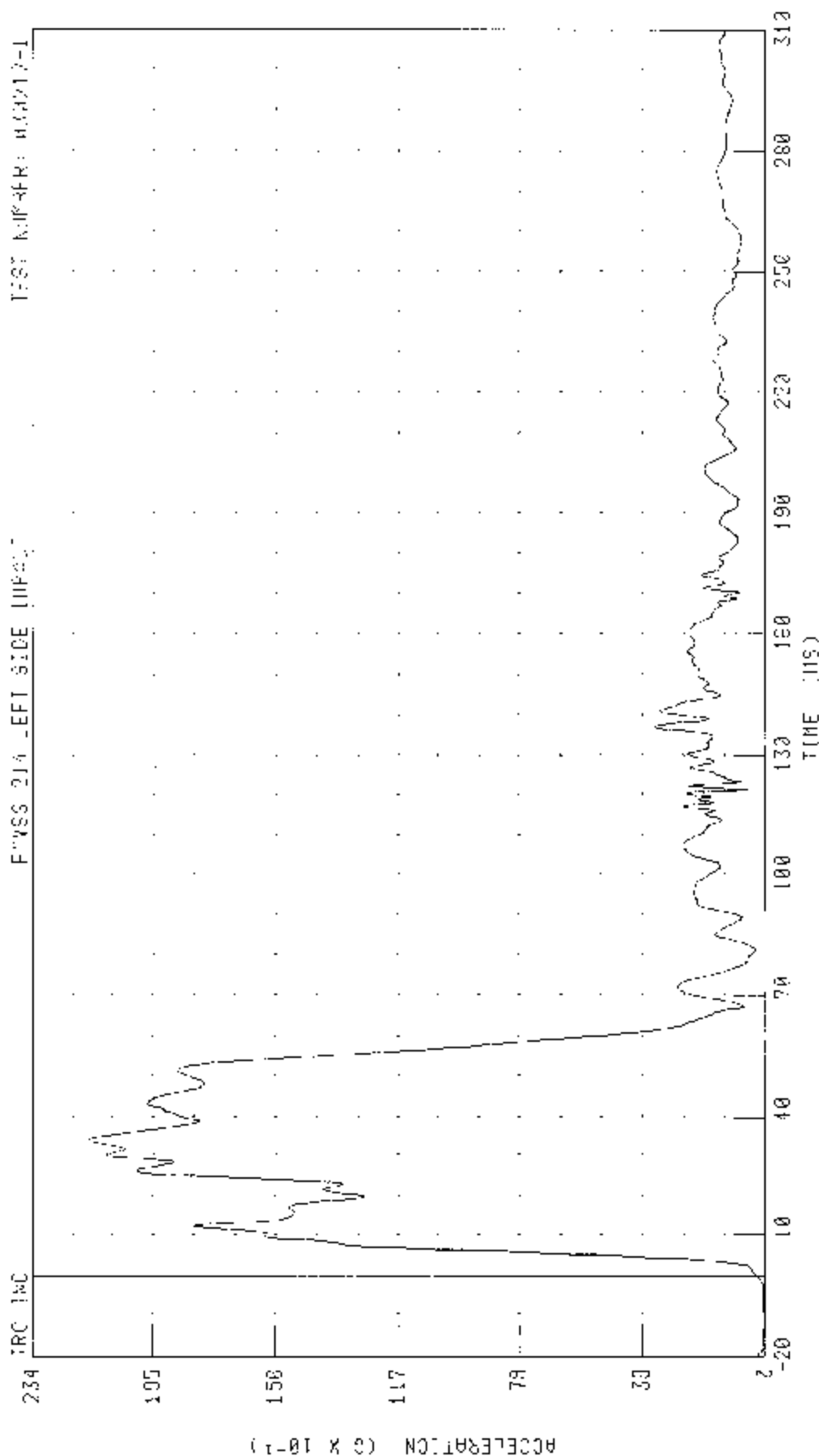
PEAK DATA: 4.46 KPH @ 172.16 MS; -1.02 KPH @ 3.40 MS

(-3) X 4/4X AL13013A

48.20 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 PAZDA PROJECT 5

REAR F BOPRON PROOF AXI - RESULTANT ACCELERATION

FYSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1



PEAK DATA: 21.59 S @ 35.02 MS, 0.01 G @ -10.88 MS

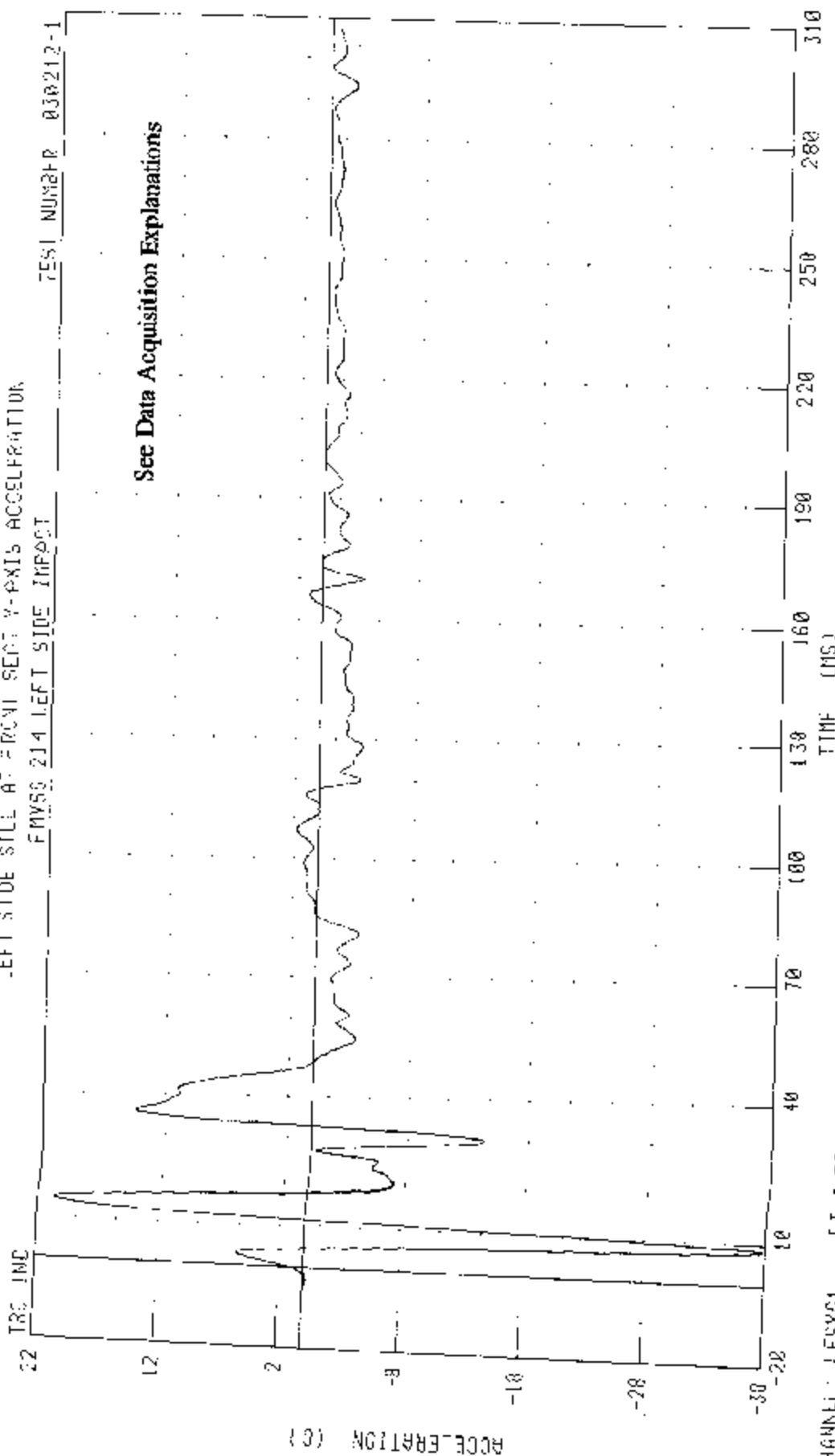
CHANNEL: RD400 FILTER: CP, CLASS 20

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2X03 MA700 PROTECT S
LEFT SIDE STILL AT FRCV1 SENT Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

See Data Acquisition Explanations



CHANNEL: LFSYG1 FILTER: CH. CLASS: 00

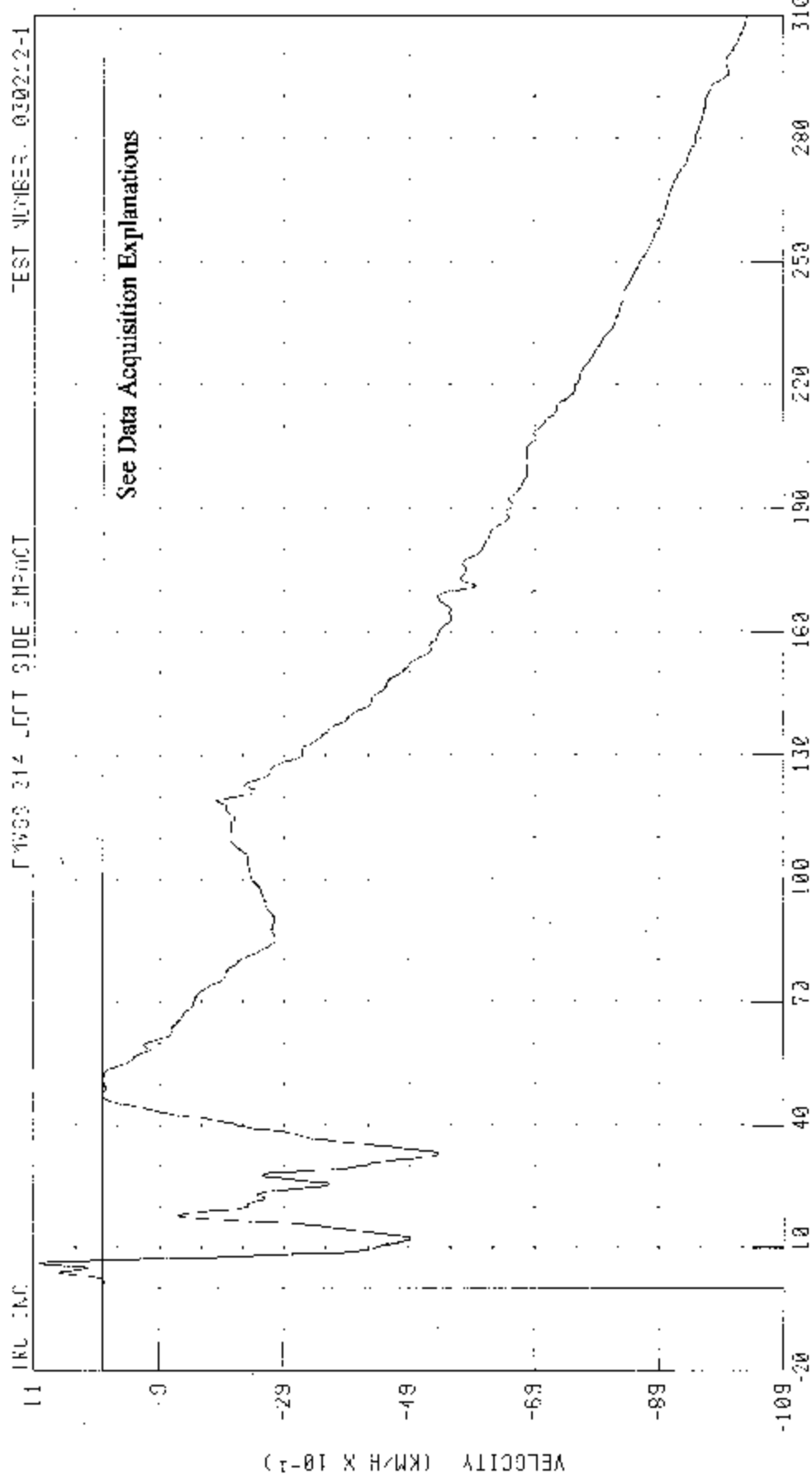
TIME (MS)

PEAK DATA: 20.00 G @ 15.36 MS; -37.85 G @ 39.18 MS

43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO IF-1 SIDE OF 2003 MAZDA PROUD 5
 LEFT SIDE SILL AT FRONT SEAT Y AXIS VELOCITY

TEST NUMBER: 030212-1

FWGS 314 LEFT SIDE IMPACT



CHANNEL: F5VVI FILTER: C4 CLASS: 100

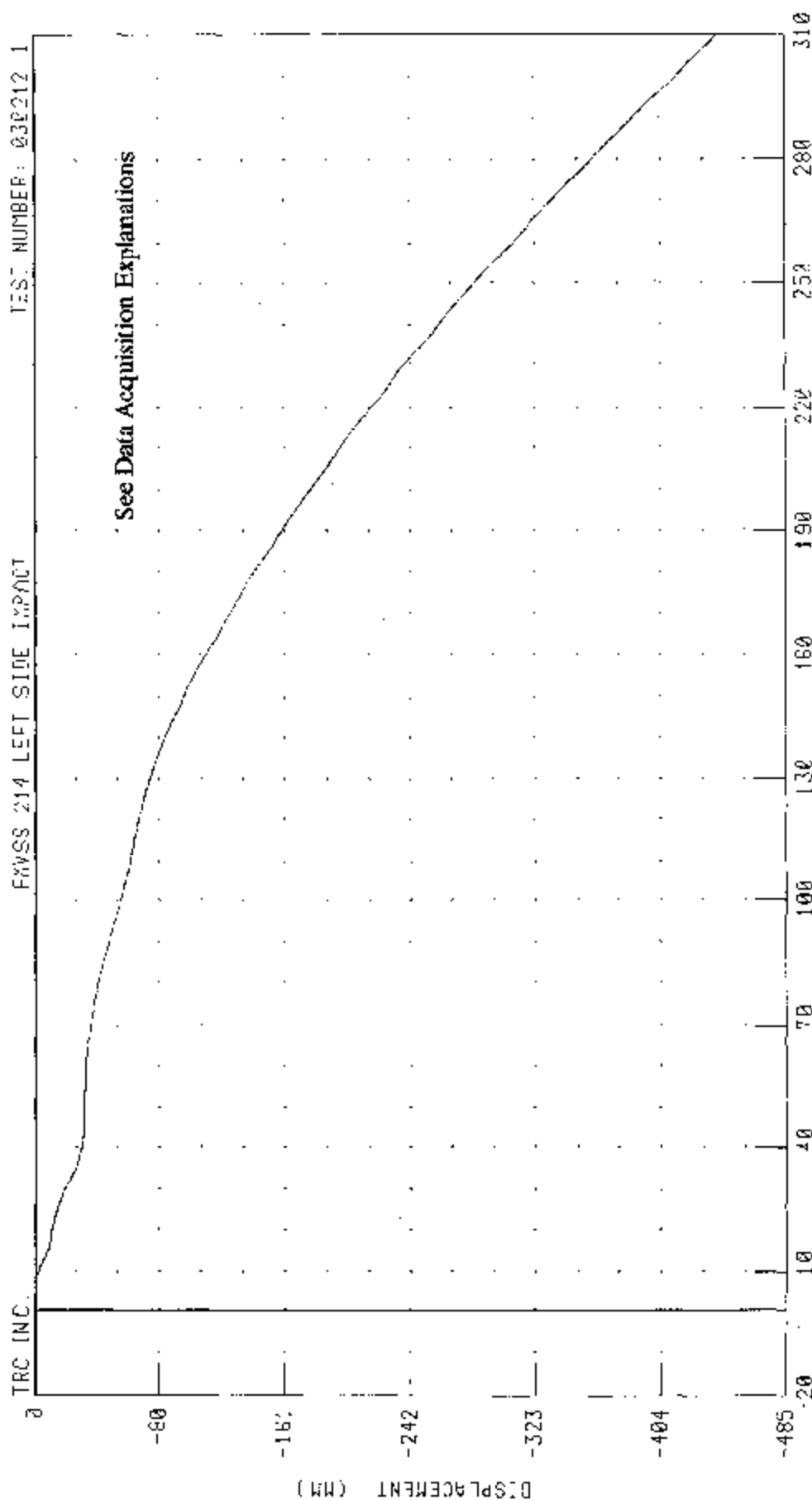
FLAK OFF: 01 24:11 8 5.50 MS, 10 32 24:11 8 318 24 MS

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MA/14 PROTEGE 5

LEFT SIDE STL AT FRONT SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 030212 1

FRVSS 214 LEFT SIDE IMPACT



CHANNEL: LFSVD1 FILTER: CH. CLASS 180

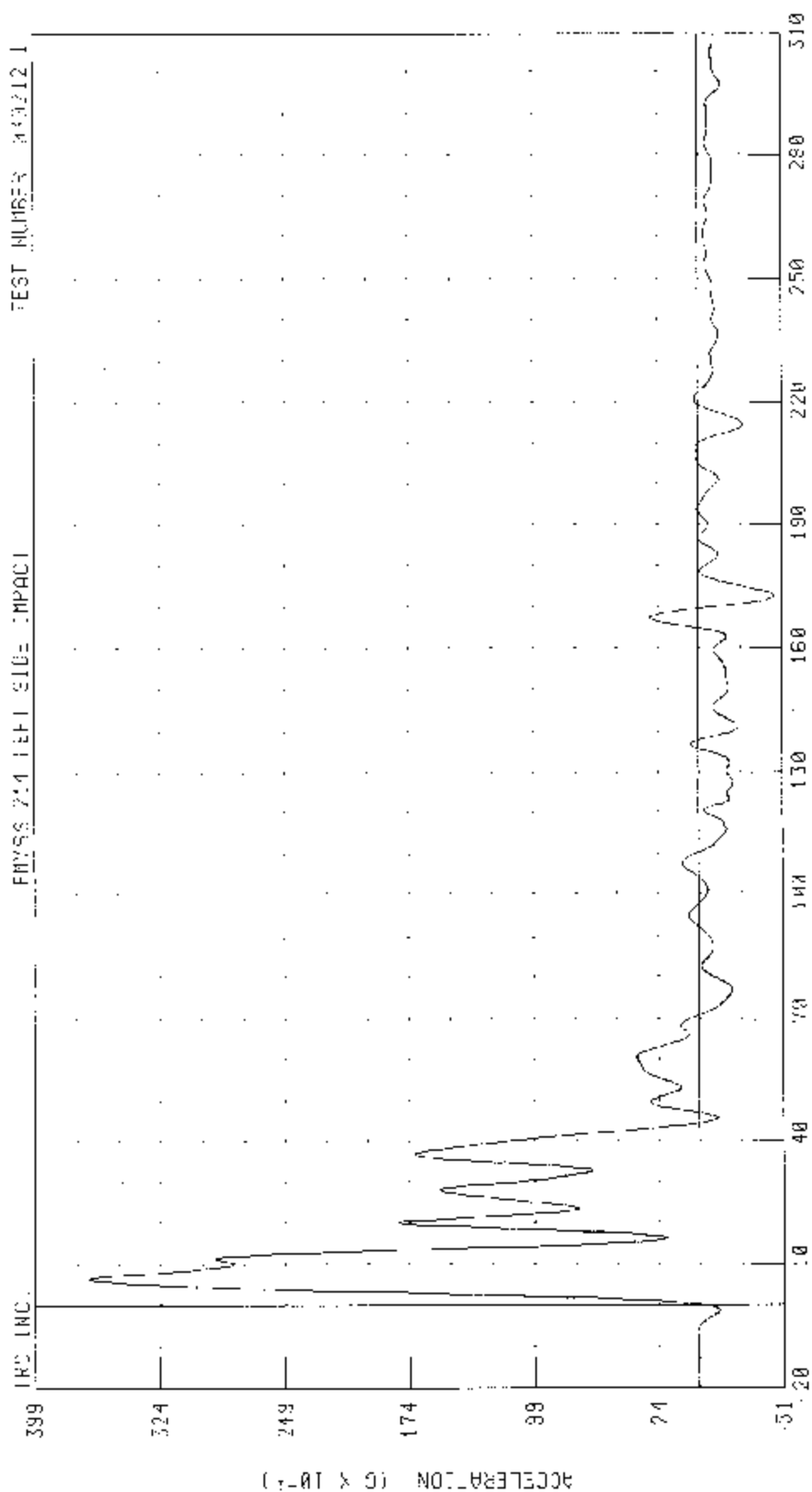
PEAK DATA 0 66 MM @ 7 30 MS, -442 40 M1 @ 310 00 MS

48/24 2TH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECTE

LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

PHYS: 214 LEFT SIDE IMPACT



ACCELERATION (G X 10⁻⁴)

TIME (MS)

CHANNEL: JRCY61 FILTER: CH. CLASE B0

PEAK DATA 35.70 0 0 6 32 MS; -3.45 0 0 172 34 13

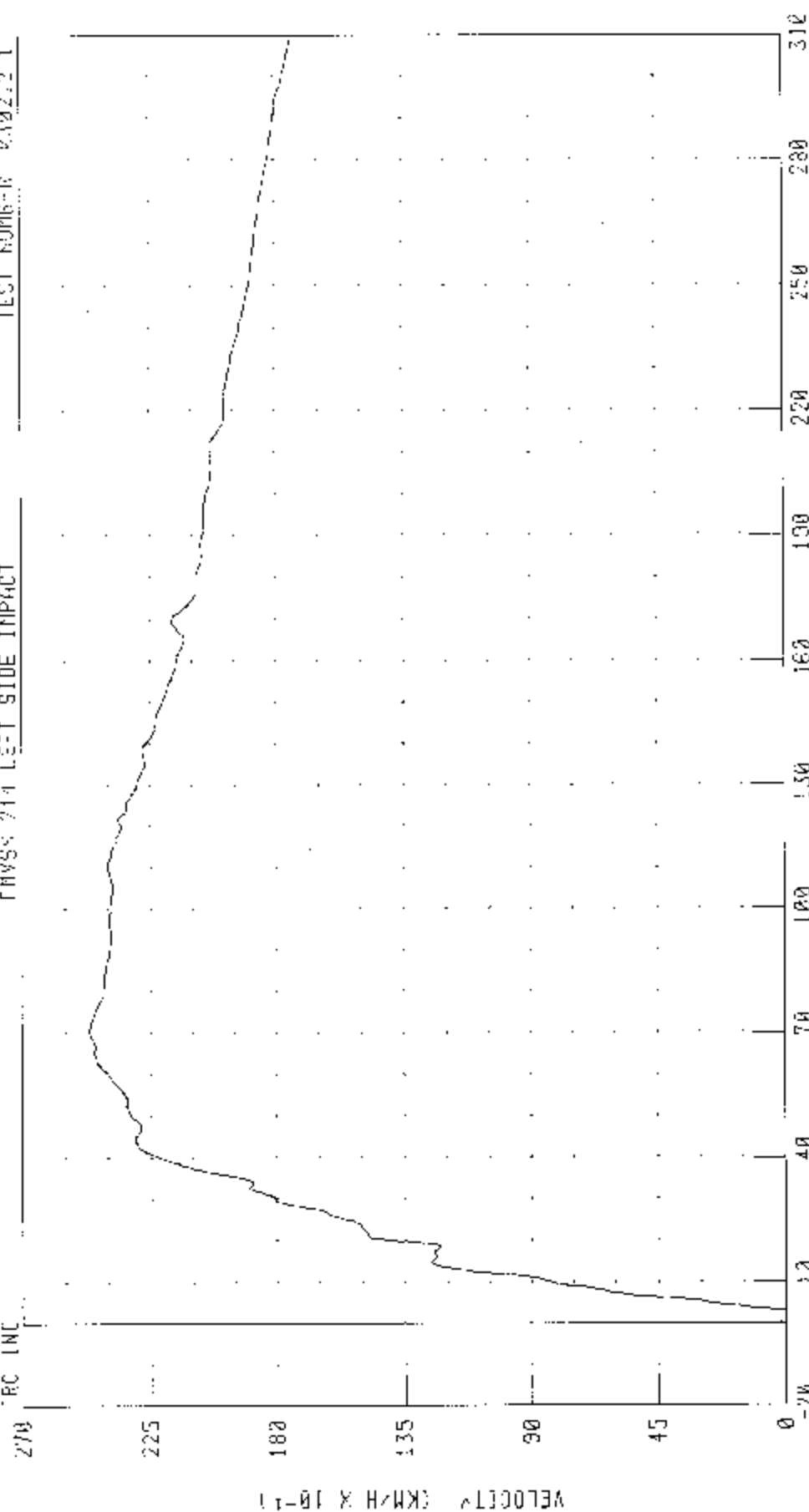
43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MC/30 PROTEGE 5

LEFT SIDE SILL AT REAR SEAT V-AXIS VELOCITY

TEST NUMBER 230212-1

PHYS 214 LEFT SIDE IMPACT

REC INC



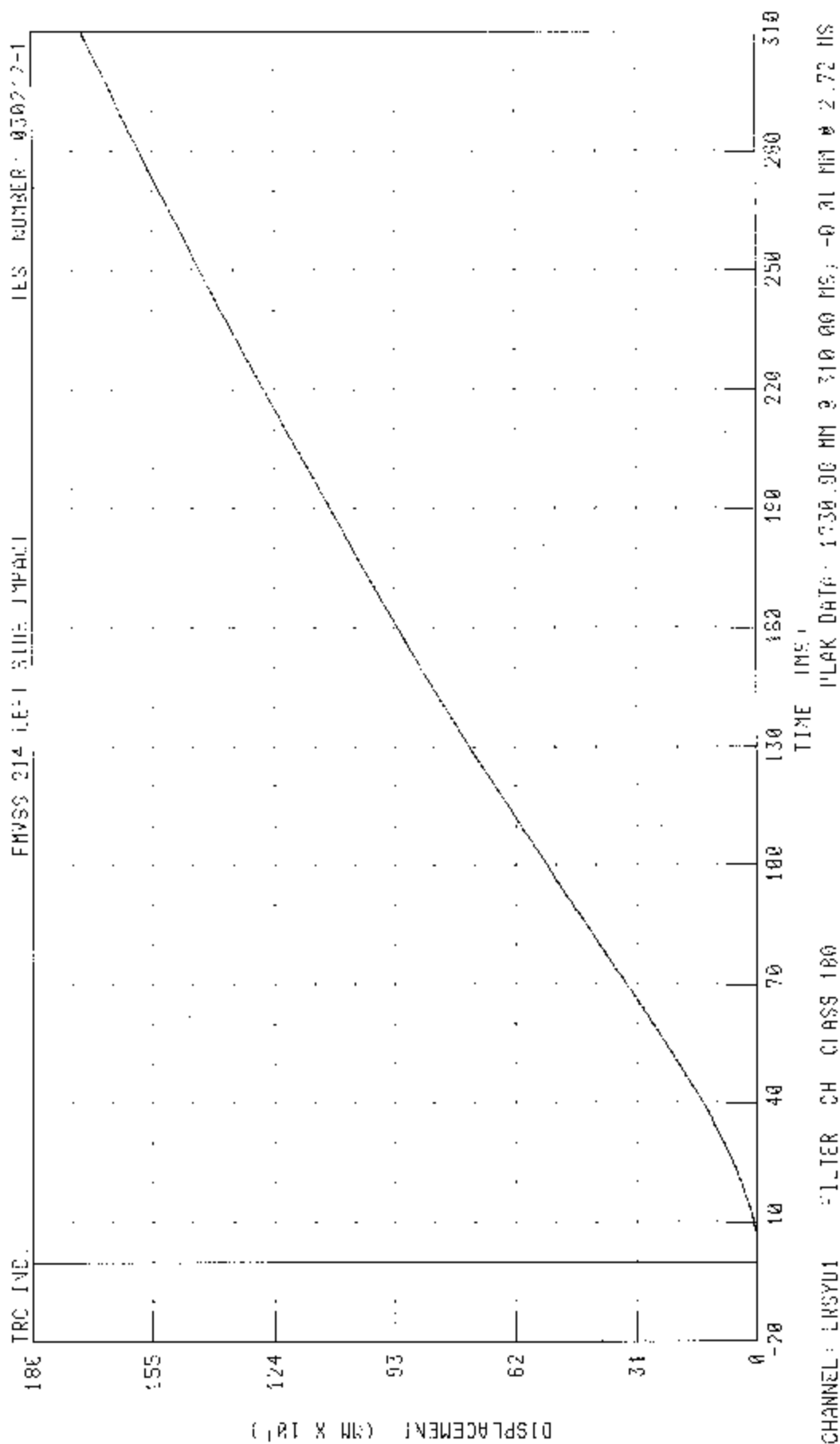
TIME (MS)

PEAK DATA 24 63 KPH 6 70 64 MS 40 20 KPH 6 2 32 MS

CHANNEL LRSVY: FILTER: CH CLASS 120

48/24 KPI: 90 DEGREE SHIP IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MODEL BRIDGE 5

LEFT SIDE STILL AT REAR SPAT Y-AXIS DISPLACEMENT

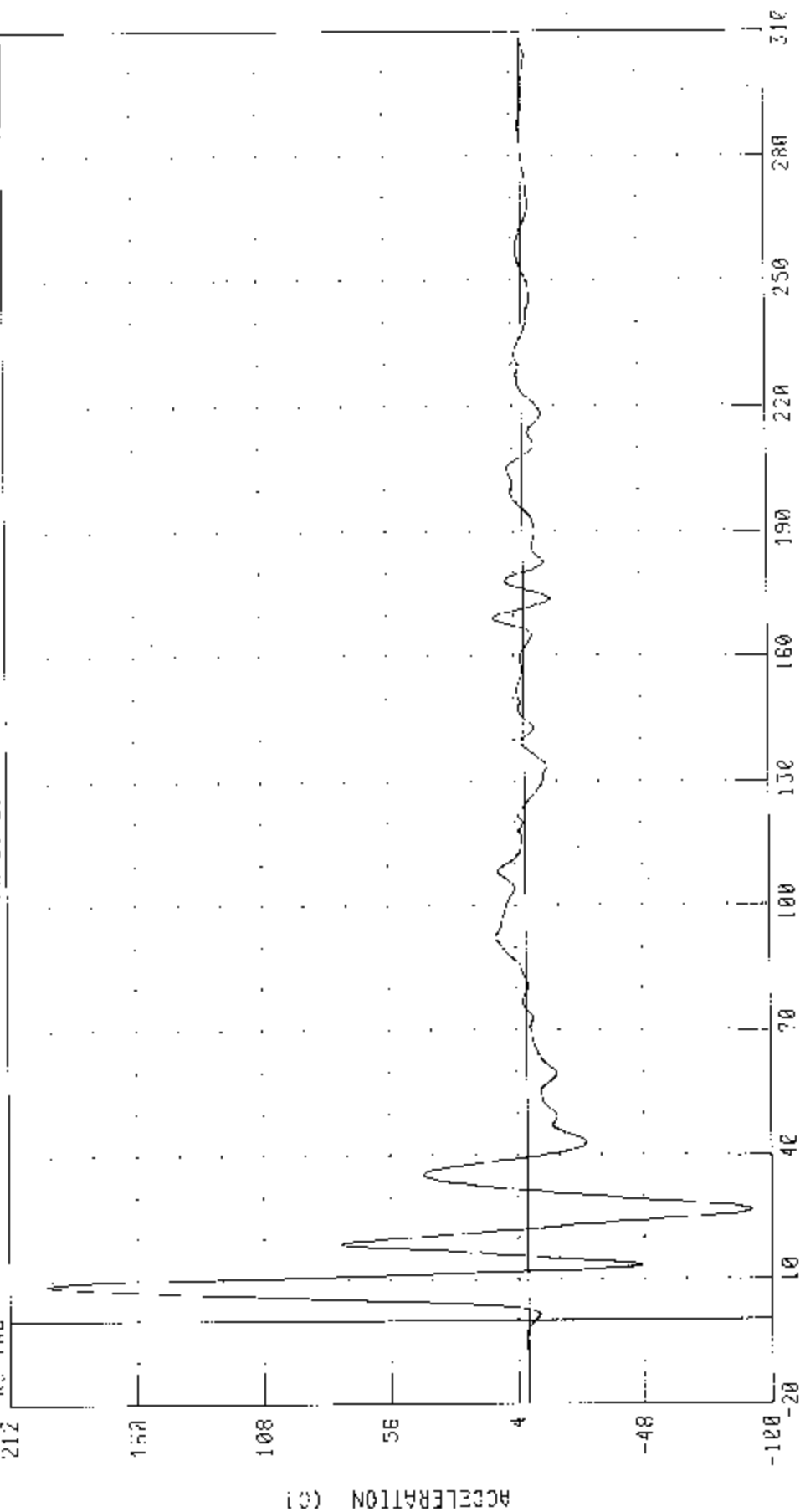


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

IRC INC



TIME (MS)

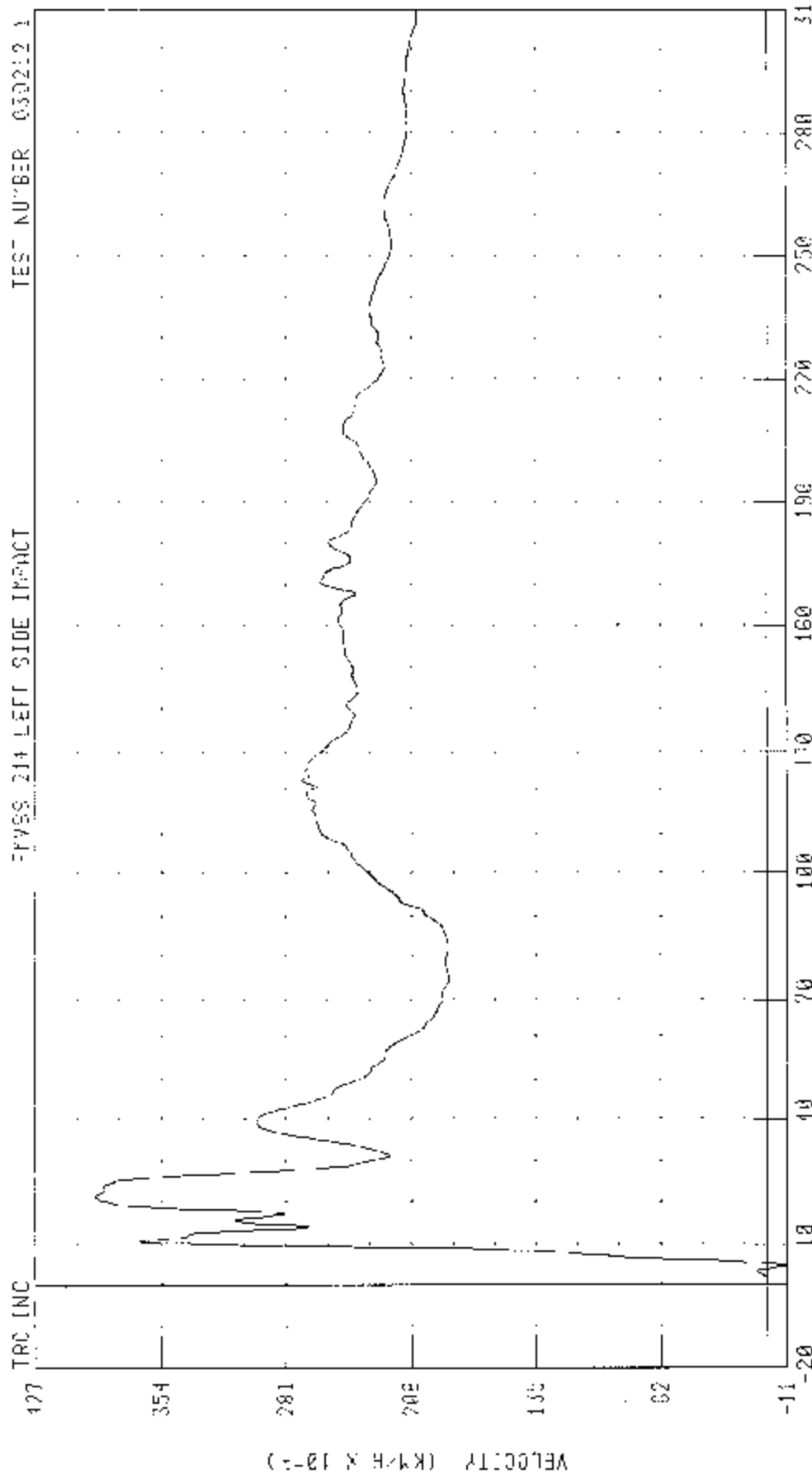
CHANNEL: LFCY31 FILTER: CH. CLASS BR

PEAK DATA: 100.50 G @ 8.90 MS, -91.93 G @ 26.88 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 PAZCU PROTEGE 5

LEFT FRONT DOOR ON CENTERLINE Y-AXIS VEHICLE

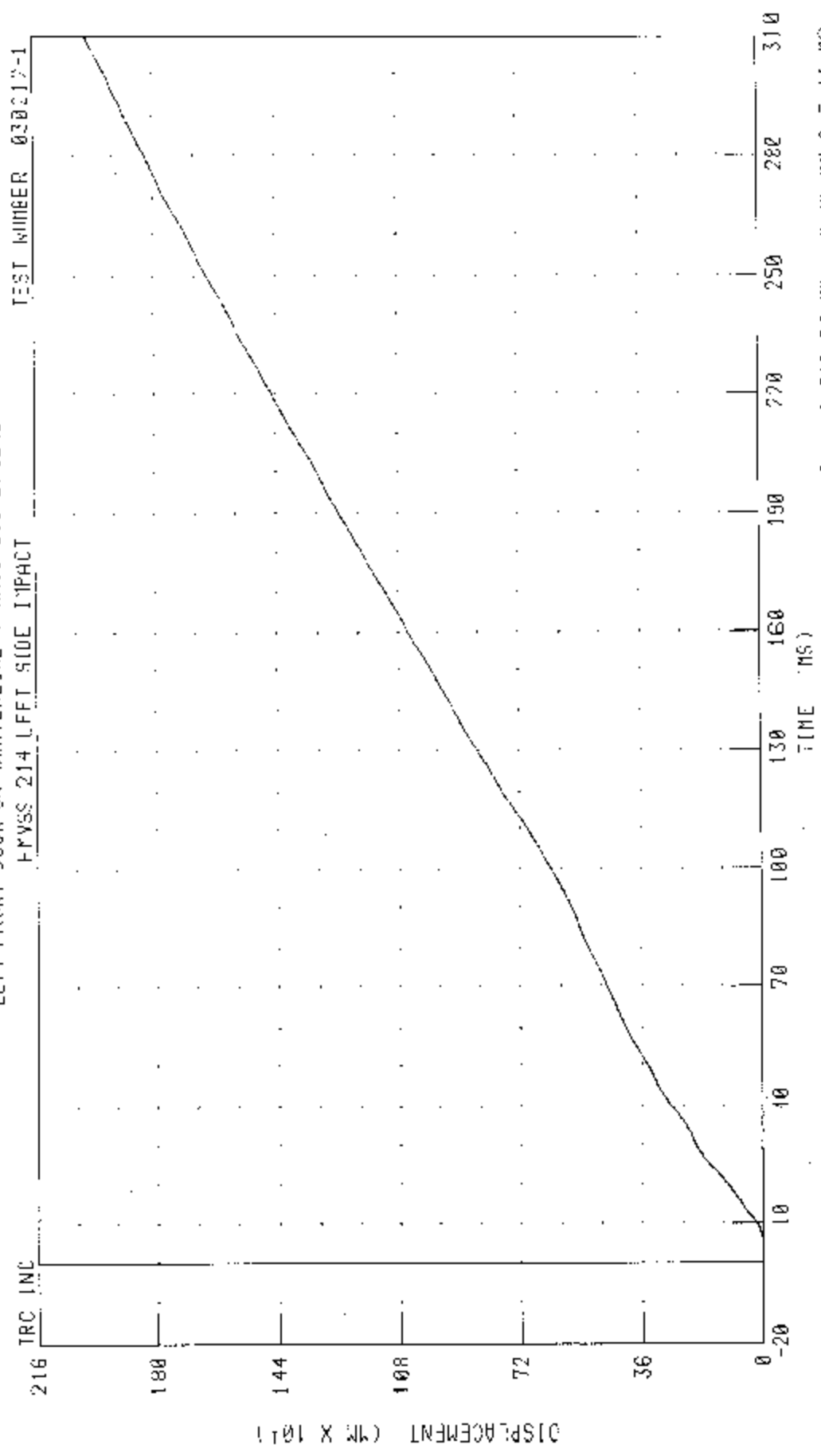
FFVS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL: LICV01 FILTER: CH CLASS 180

PLAC DATA: 33 22 20/4 0 21 12 MS, -1 07 KPH 0 + 50 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 PASSENGER PROTECT 5
 LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT



PEAK DATA: 1990.55 "M 0 310 00 "S; -0 00 PM 3 5 12 MS

CHANNEL: LFCYC1 FILTER: CH. CLASS 130

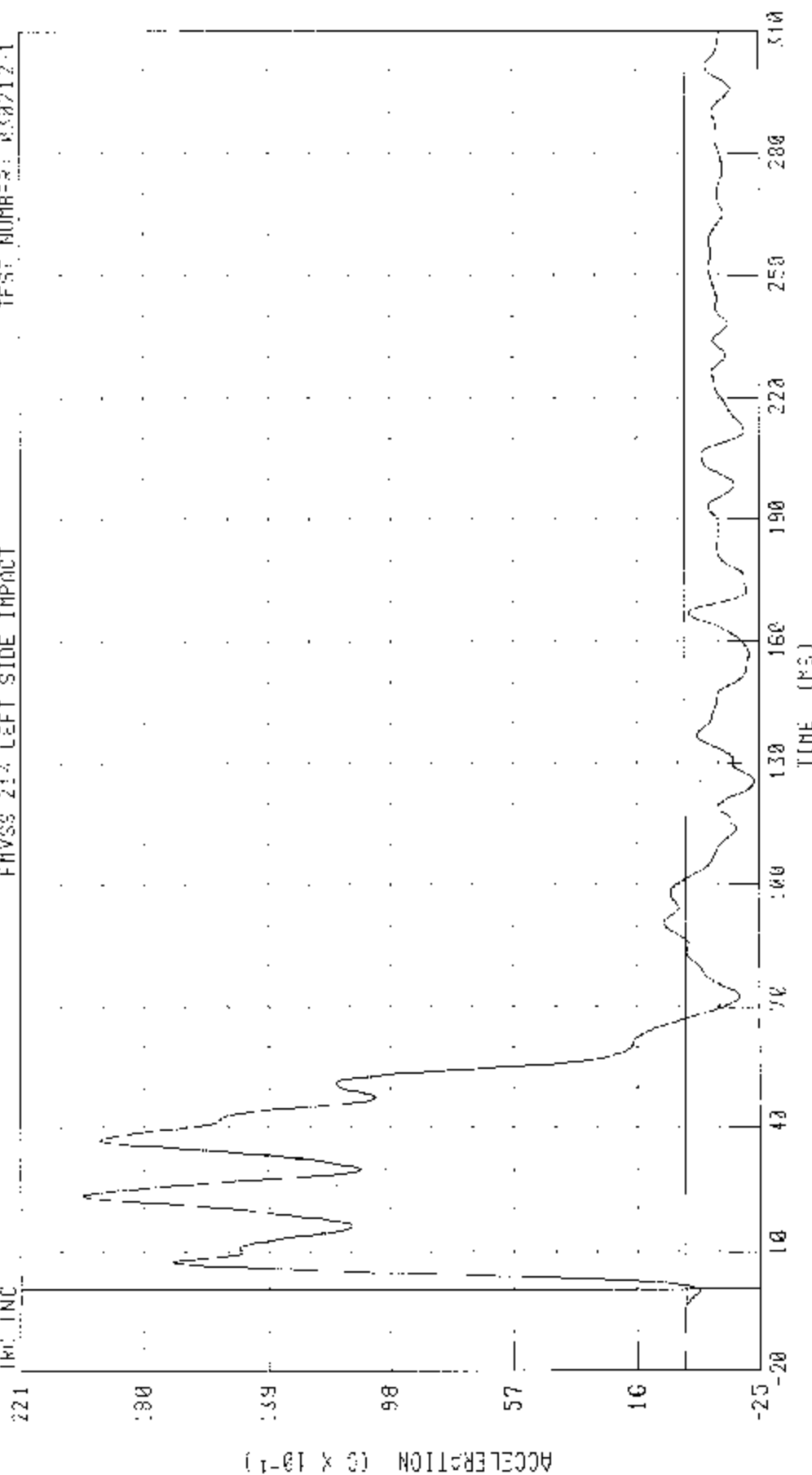
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZOP PROTEGE 5

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION

TEST NUMBER: R30212-1

FMVSS 214 LEFT SIDE IMPACT

INC INC



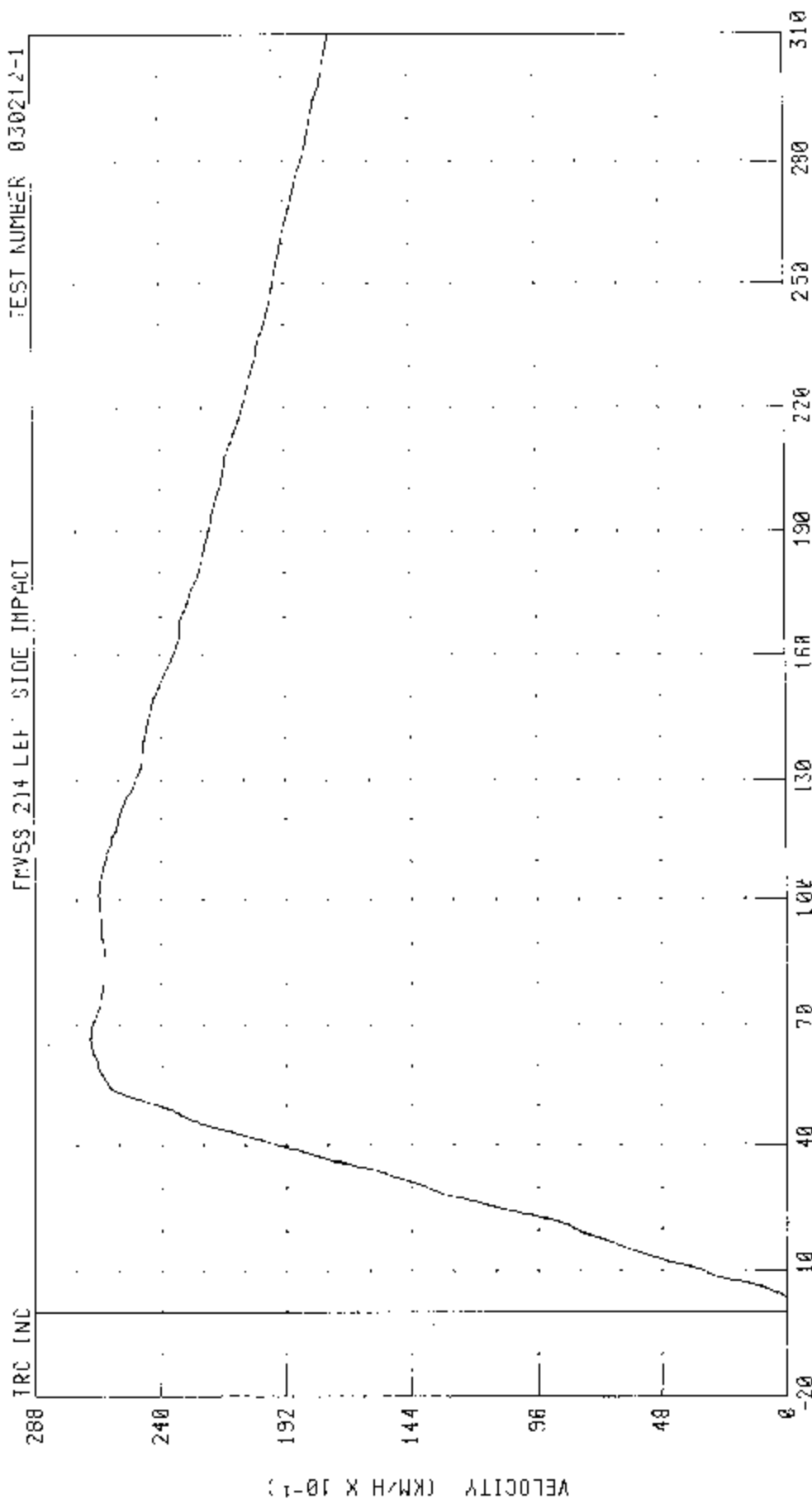
TIME (MS)

PEAK DATA 20 05 0 0 23 46 MS -2 33 0 0 125 52 MS

CHANNEL 3RTYC1 FILTER ON MASS 60

48/24 KPH 00 DEGREE SIDE IMPACT: MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2002 MAZDA PROTEGE S

RIGHT REAR OCCUPANT COMPARTMENT Y AXIS VELOCITY



CHANNEL: RRTV1 FILTER: CH CLASS 100

PEAK DATA: 26 68 KPH @ 66 56 MS; -0 21 KPH @ 2 80 MS

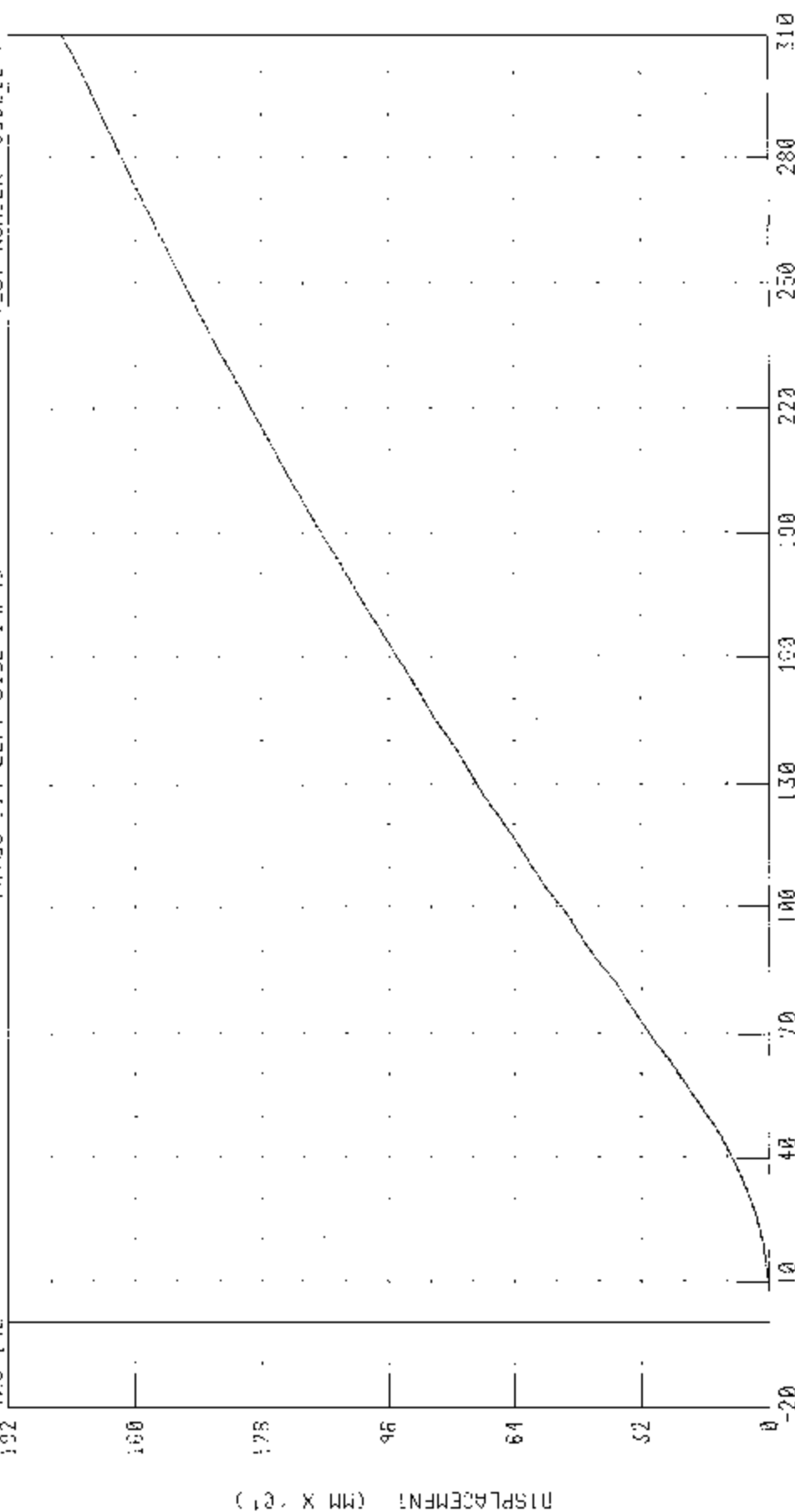
49/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS DISPLACEMENT

TEST NUMBER: 030212-1

INVEST 214 LEFT SIDE IMPACT

TRC INC



TIME (MS)

CHANNEL: HR7VD1 FILTER: CH. CLASS 180

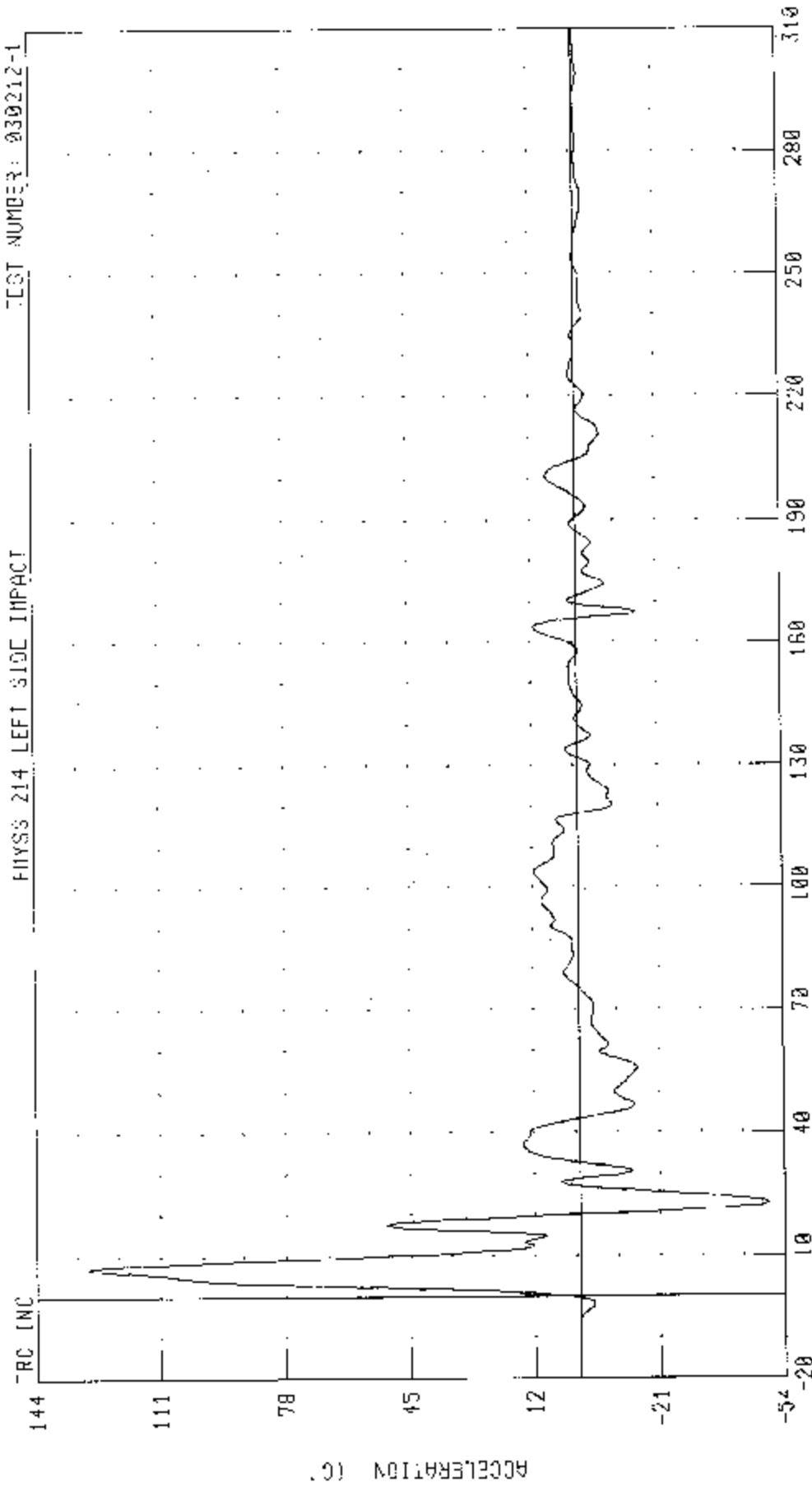
PEAK DATA: 1783.92 MM @ 310.20 MS; 0.00 MM @ 5.20 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE
 LEFT FRONT DOOR F10-REAR Y AXIS ACCELERATION

TEST NUMBER: 030212-1

FHYSS 214 LEFT SIDE IMPACT

-RC INC



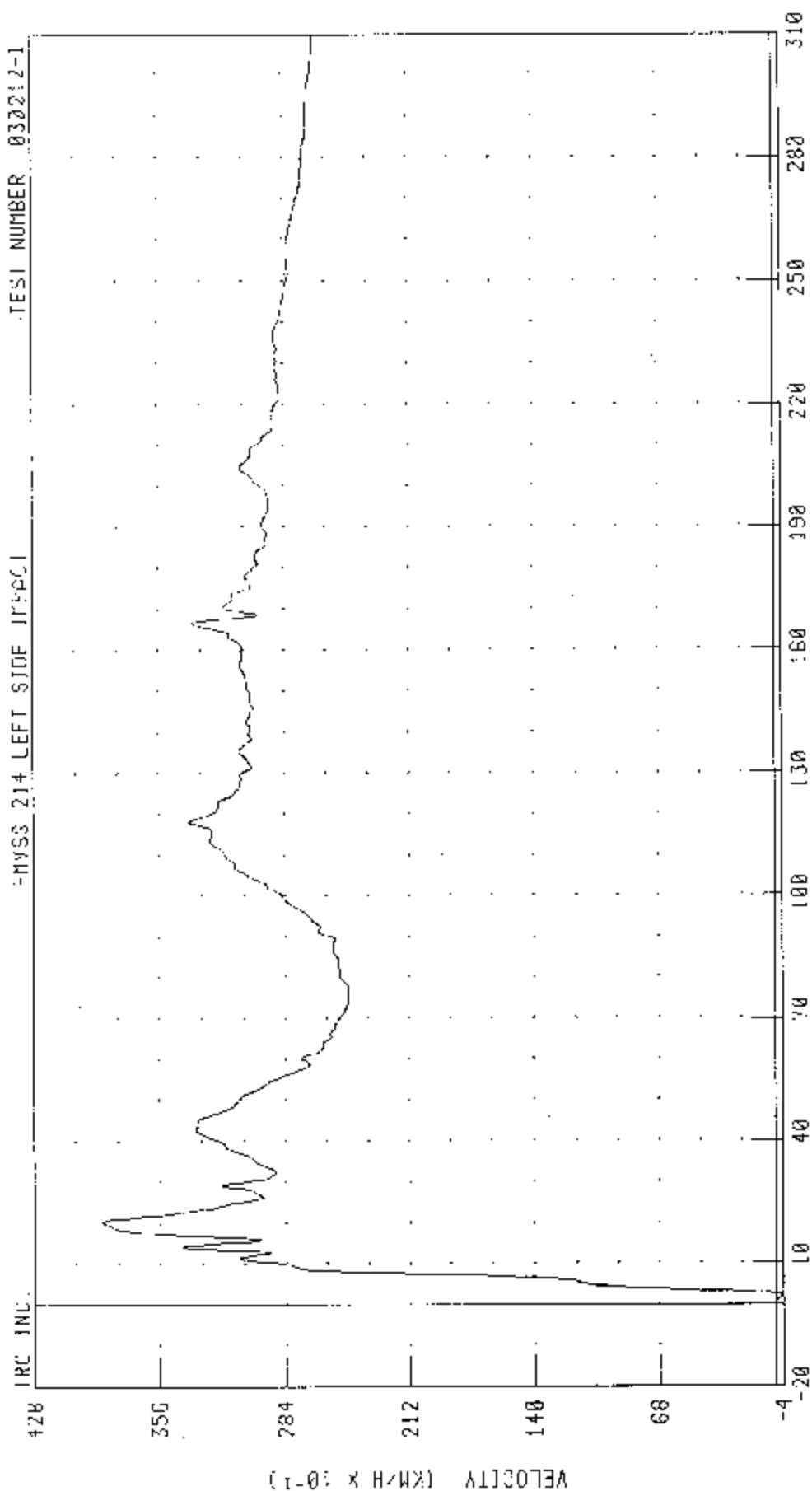
PEAK DATA 130.25 G @ 7.12 MS, -43.79 G @ 22.80 MS

CHANNEL: FHYG1 FILTER: CH. CLASS C0

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECT 5
LEFT FRONT 300R MID-REAR Y AXIS VELOCITY

TEST NUMBER 030212-1

-MYSS 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 38.89 KM/H @ 20.48 MS; -@ 45 KM/H @ 2.08 MS

CHANNEL: LCMYV1 FILTER: CH. CLASS 100

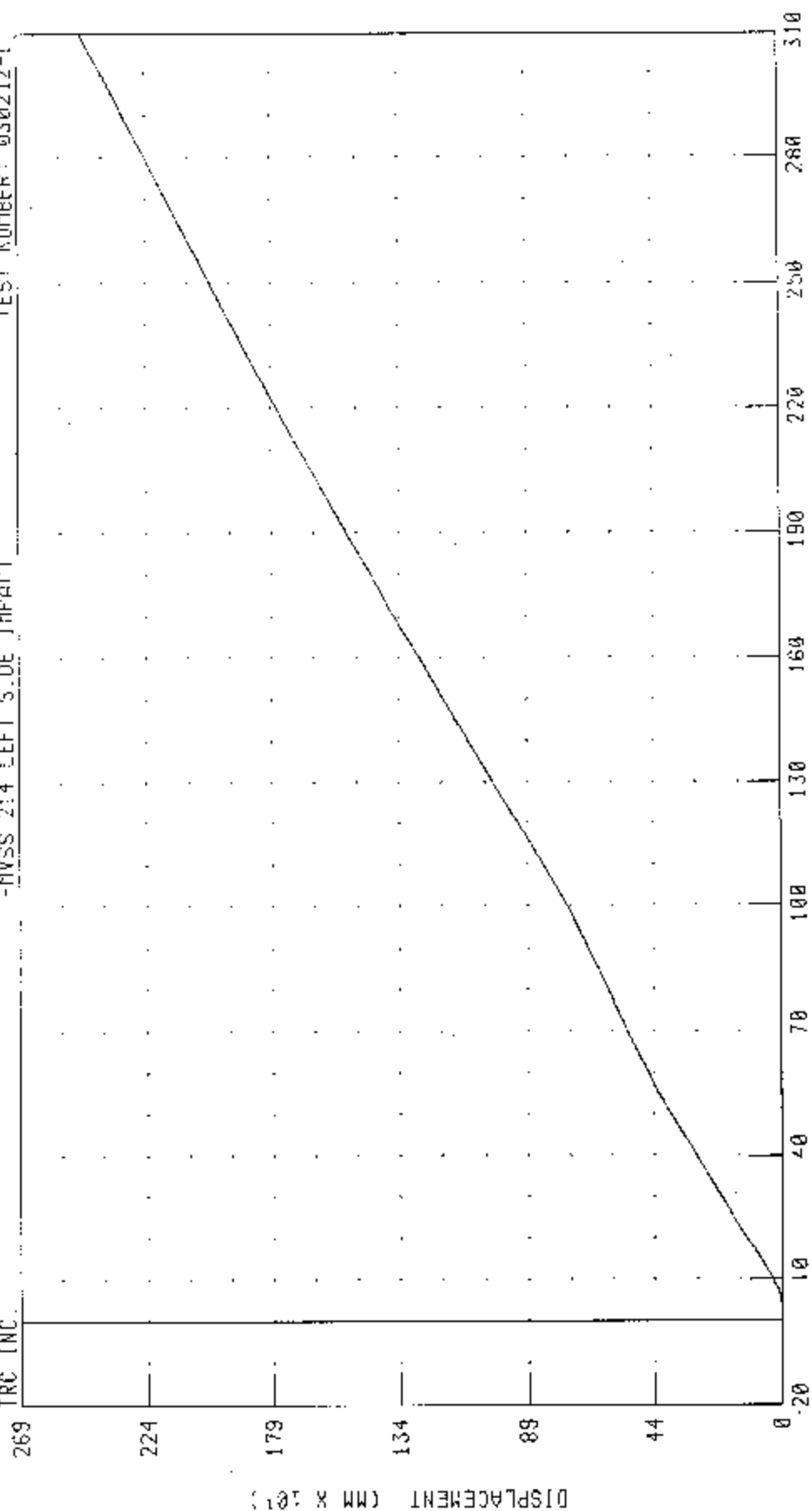
48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT FRONT DOOR MID-REAR Y-AXIS DISPLACEMENT

TEST NUMBER: 030212-1

-MVSS 214 LEFT SIDE IMPACT

TRC INC.



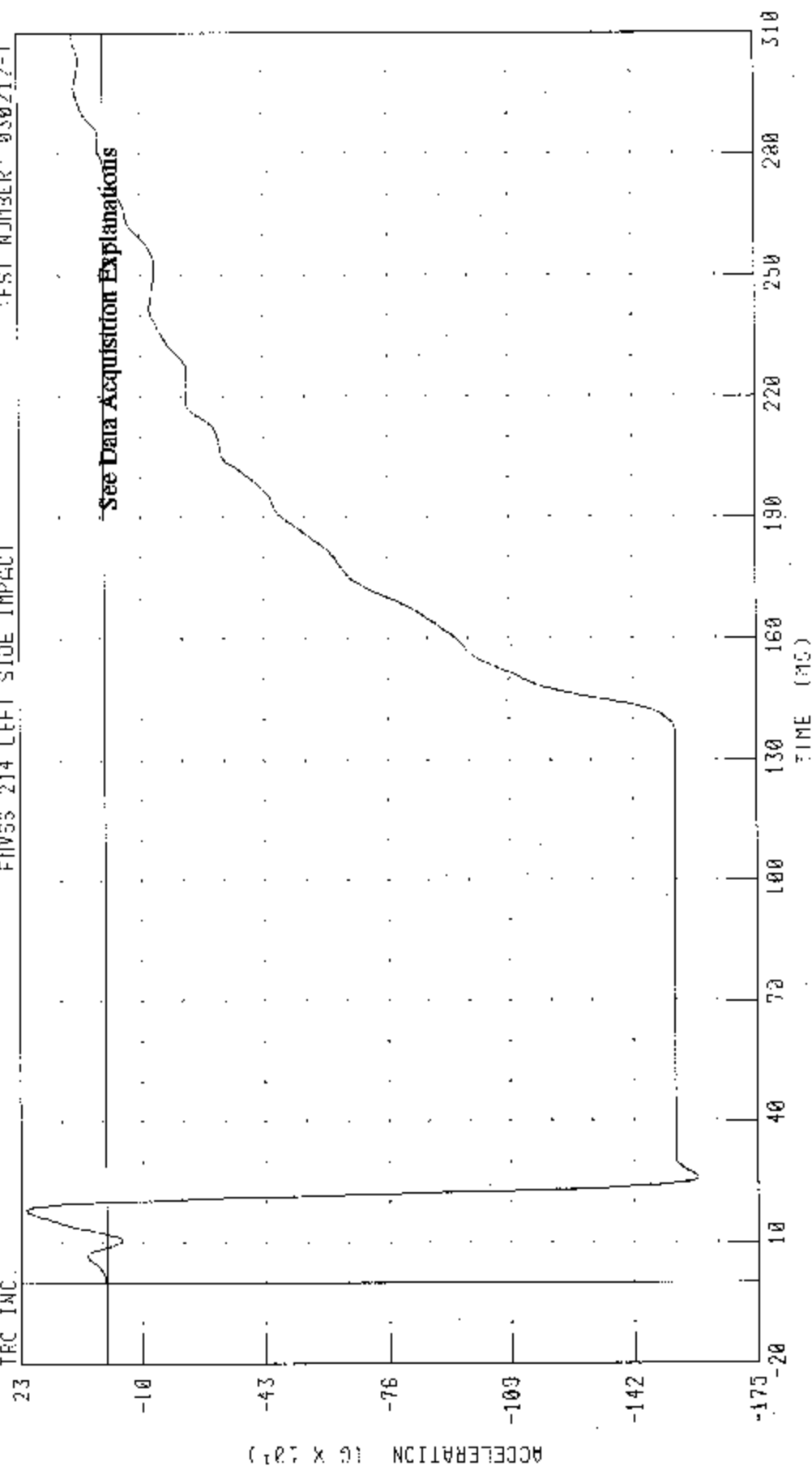
CHANNEL: LFMYD1 FILTER: CH CLASS 180

PEAK DATA 2474.97 MM @ 310.00 MS, -2.11 MM @ 2.56 NS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
LEFT FRONT ODOR UPPER CENTERLINE Y AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



See Data Acquisition Explanations

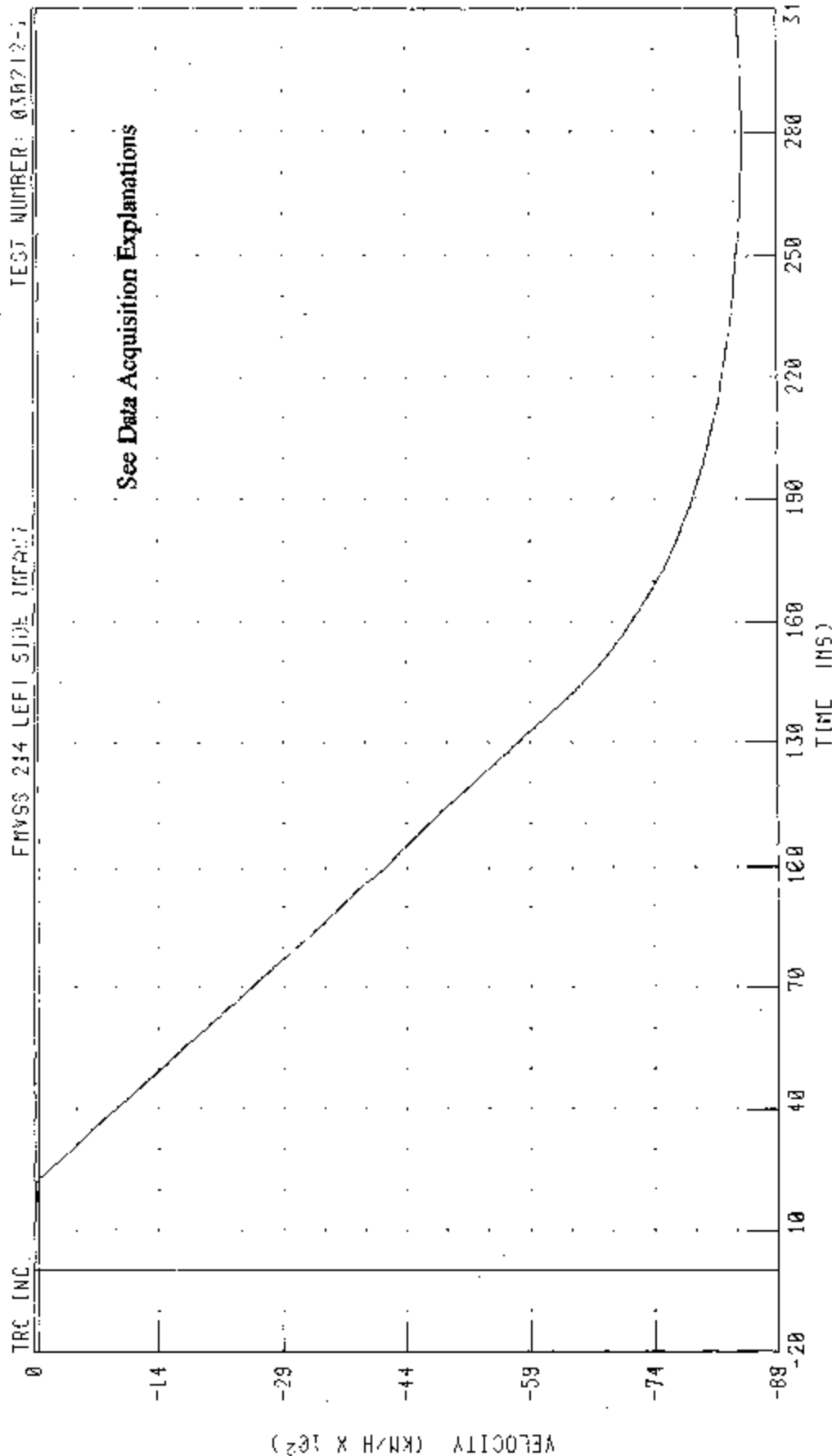
CHANNEL: LFUYG1 FILTER: CH. CLASS 60

PEAK DATA 215.56 G @ 18.00 MS; -1588.67 G @ 20.00 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 2003 (0202) PROTEGE 5

LEFT FRONT OCCUPANT UPPER CENTERLINE Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

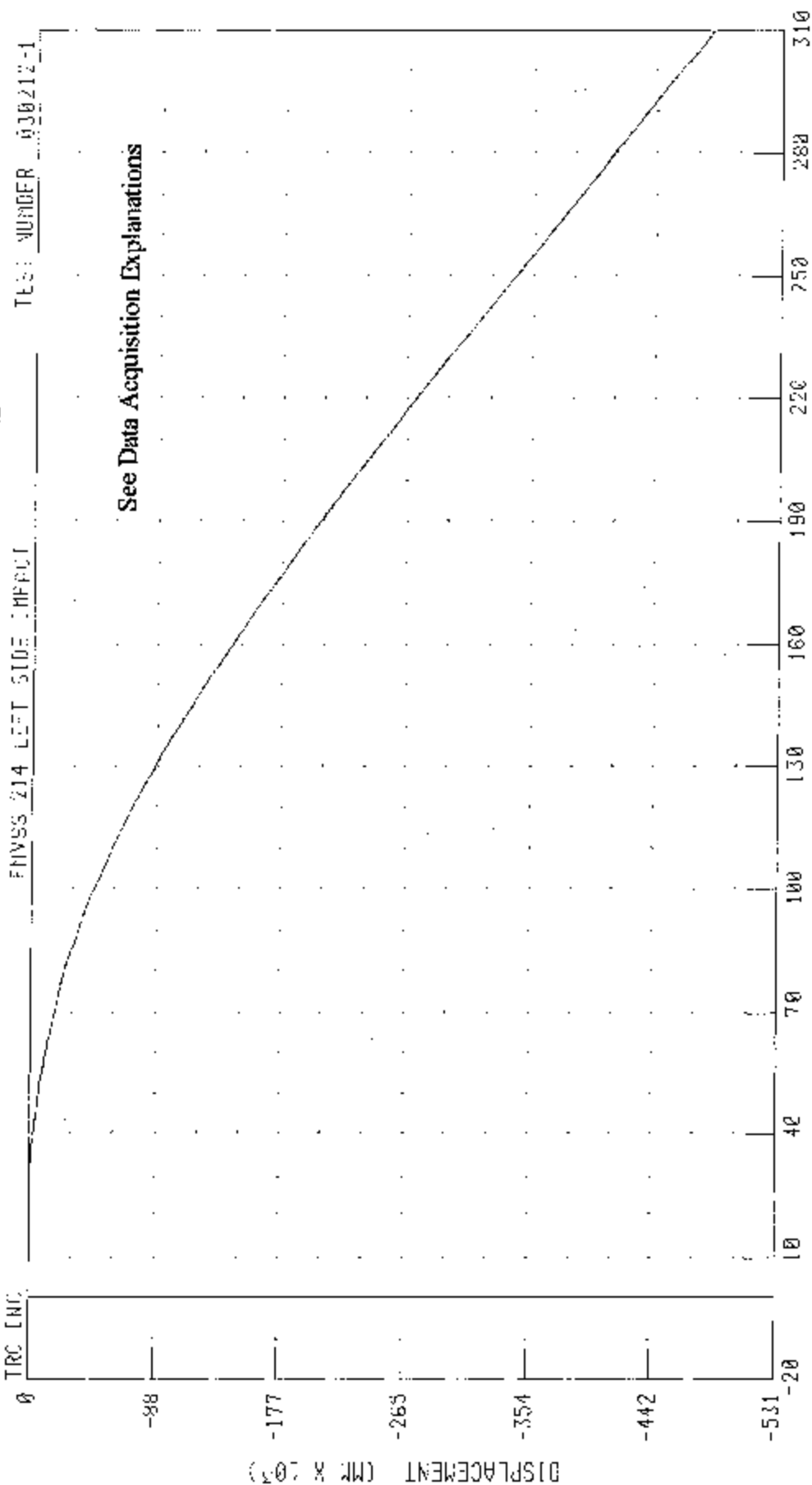


CHANNEL LF00V1 FILTER: CH. CLASS 180

PEAK DATA 47.02 KM/H @ 21.12 MS; -2528.00 KM/H @ 279.04 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO LEFT SIDE OF 2002 FORDA PRUFEUE 5

LEFT FRONT DOOR UPPER CENTRAL Y-AXIS DISPLACEMENT



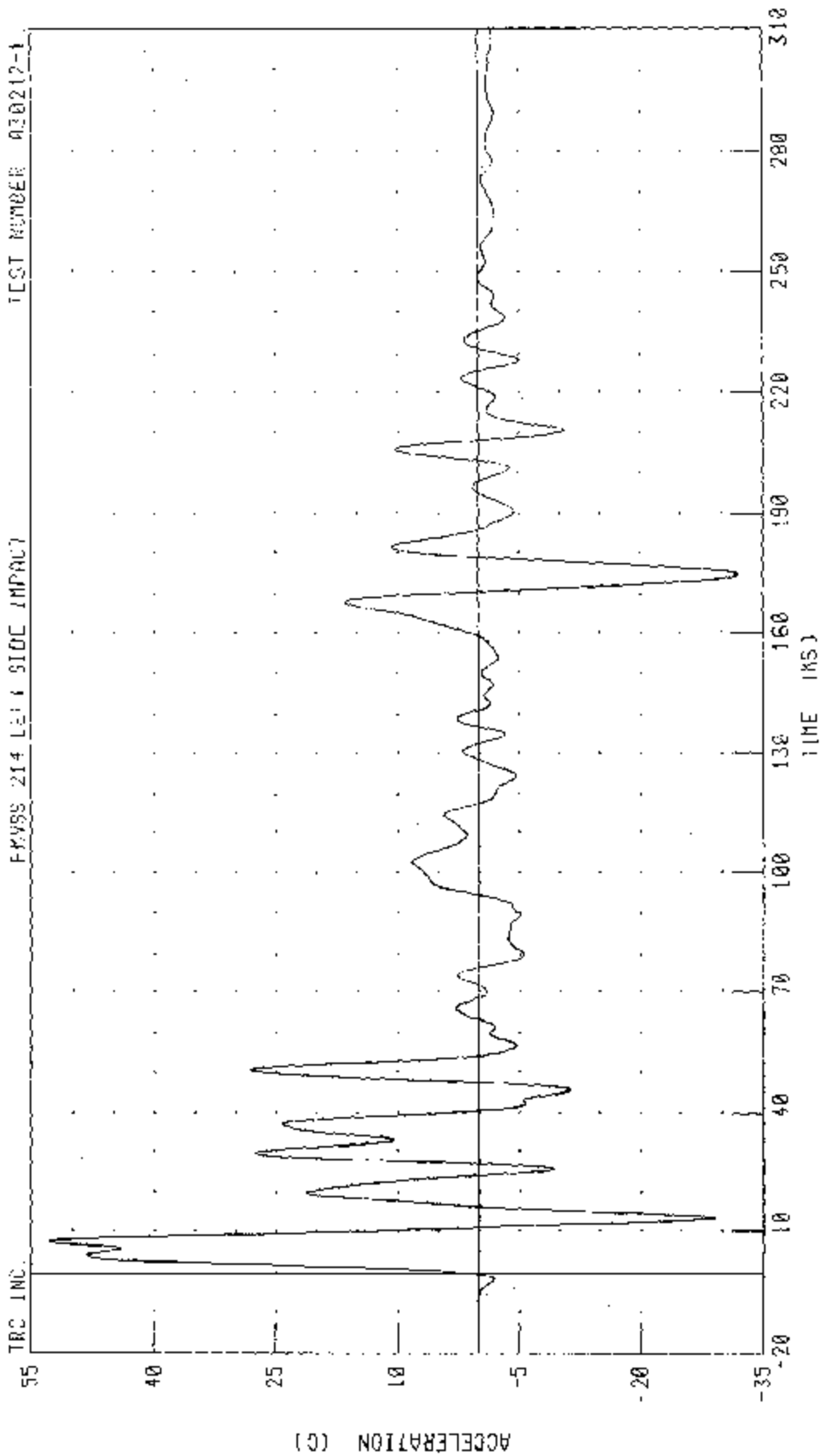
CHANNEL _F0001 FILE: CH. CLASS 100
 TIME (MS) 74.00 MS @ 22.72 MS, -48.359.94 MM @ 310.00 MS
 TEST NUMBER 030212-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
LEFT REAR DOOR MID REAR Y-AXIS ACCELERATION

TEST NUMBER 030212-1

PKVSS 214 LEFT SIDE IMPACT

TRC INC.



CHANNEL LRMVCI FILTER CH CLASS 60

PEAK DATA: 52 81 0 0 7 52 MS; 32 14 5 0 174 48 MS

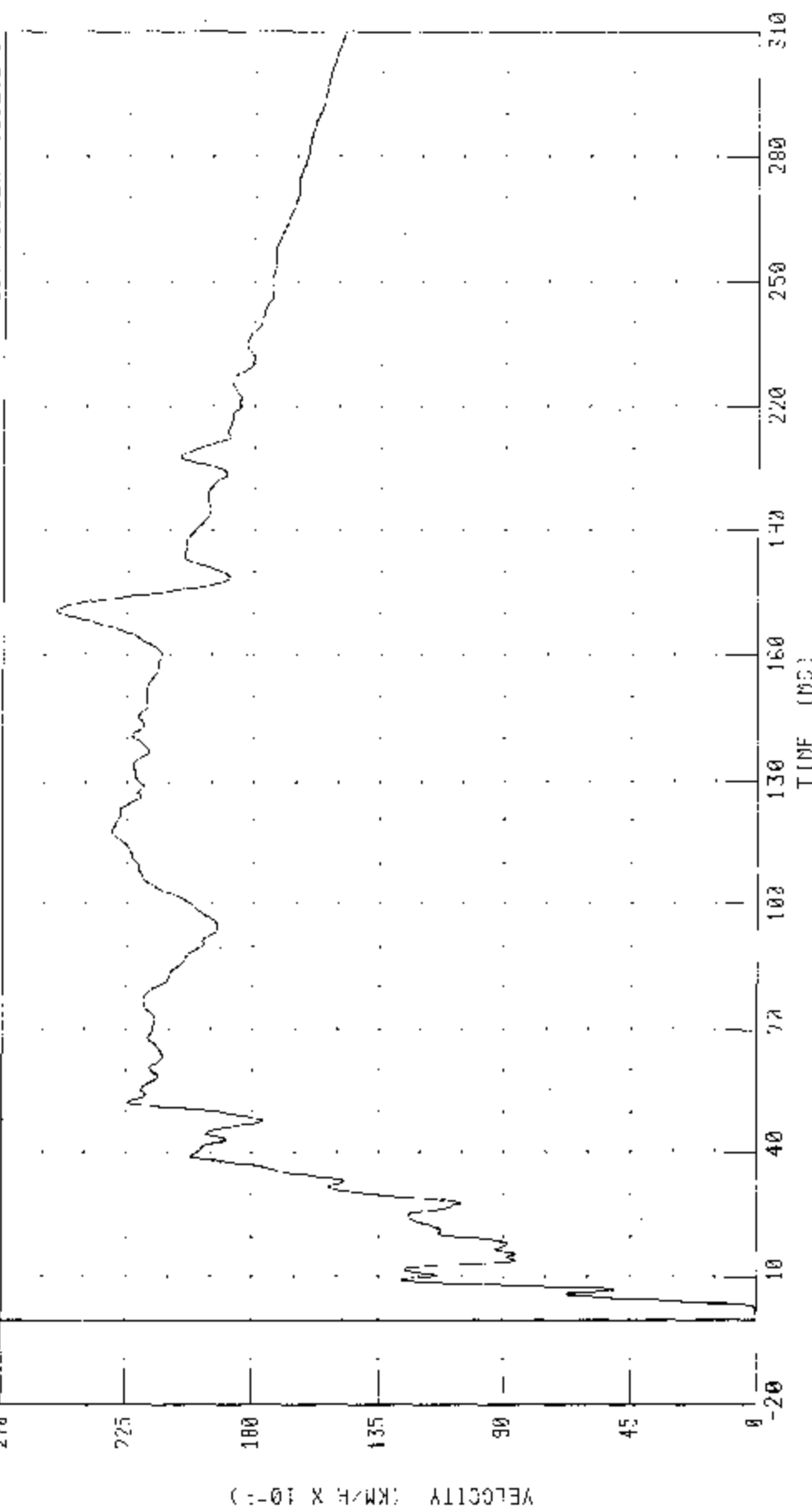
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 P4204 PROTECTOR S

LEFT REAR DOOR MID-REAR Y-AXIS VELOCITY

TRC INC.

FWSS 2.4 LEFT SIDE IMPACT

TEST NUMBER 030212-1

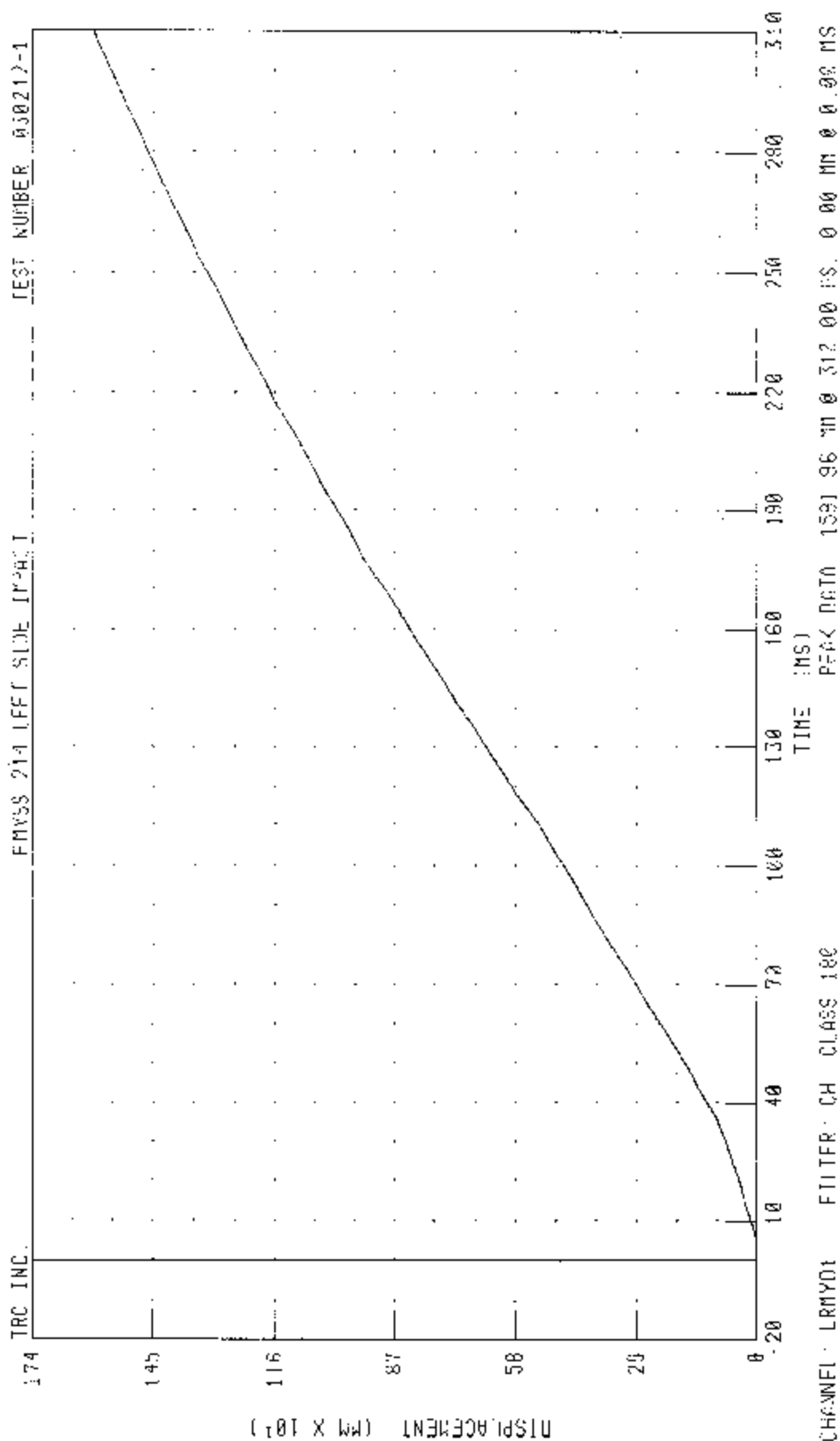


CHANNEL: LRYV1 FILTER: CH. CLASS 100

PEAK DATA: 25.26 KM/H @ 170.80 MS; 0.00 KM/H @ 0.00 MS

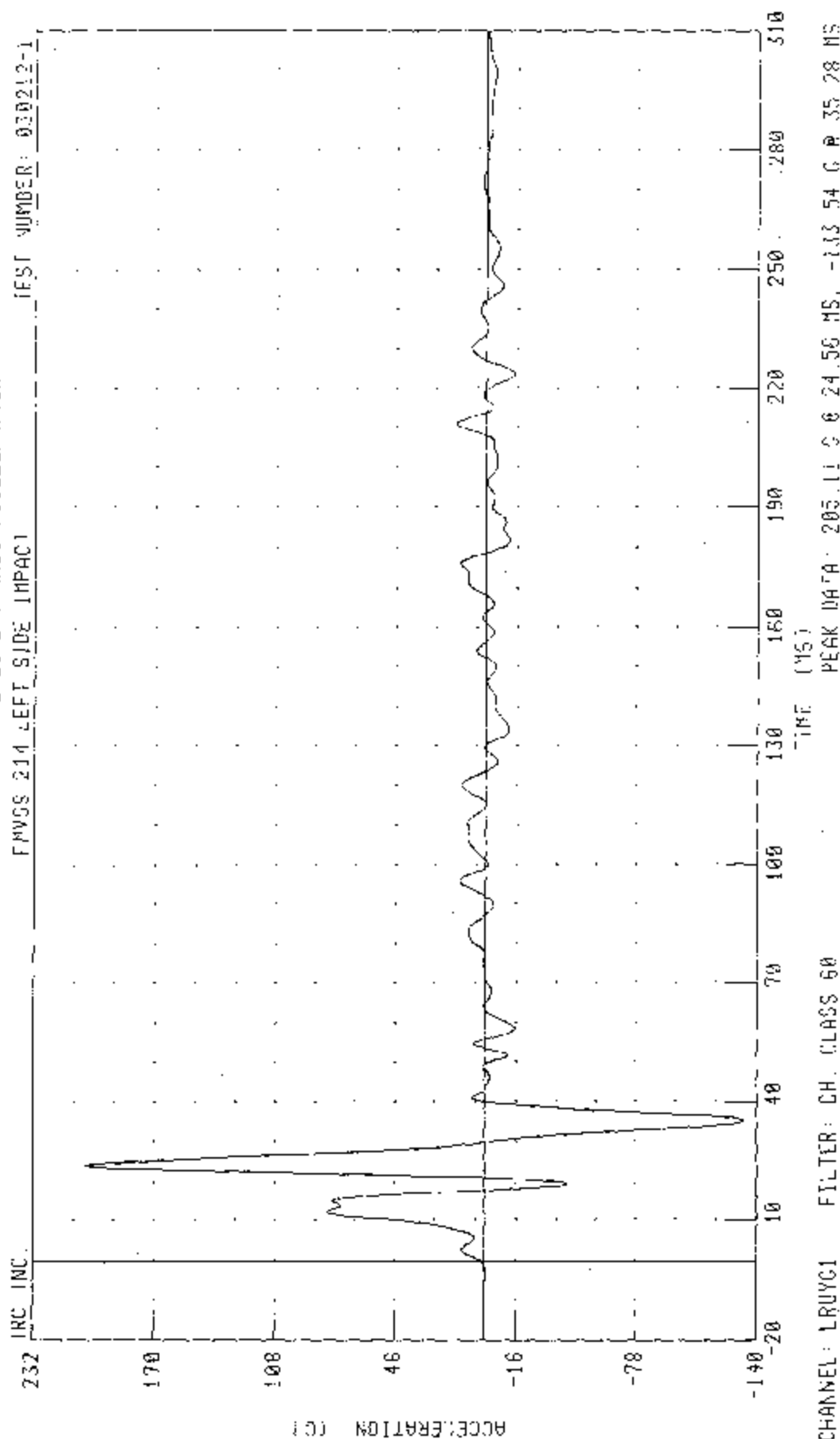
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR DOOR MID-REAR Y-AXIS DISPLACEMENT



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR DOOR UPPER CENTERLINE Y AXIS ACCELERATION

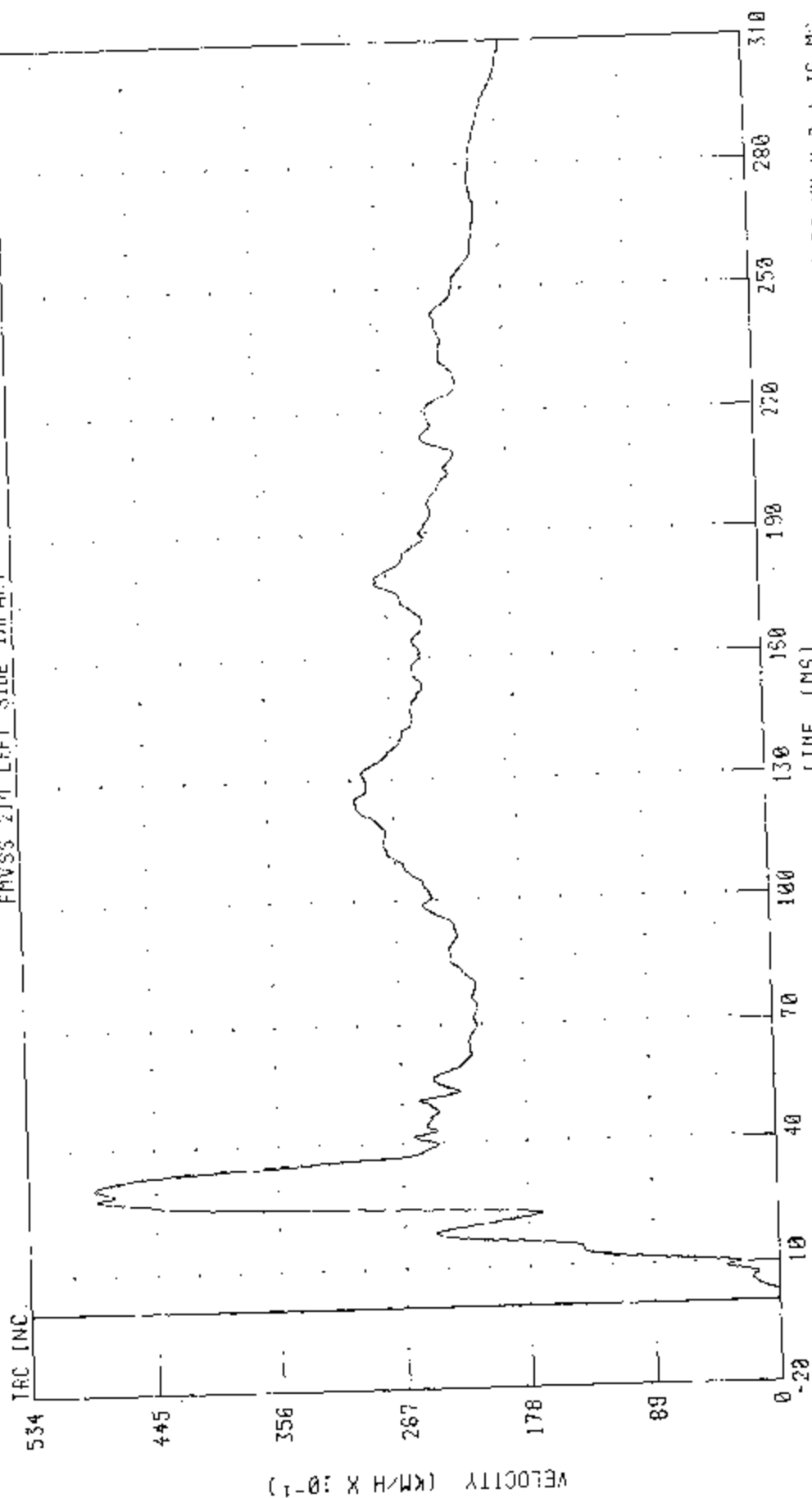


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE L 5

LEFT REAR 0300 UPPER CENTERLINE Y-AXIS VELOCITY

TEST NUMBER: 030212-1

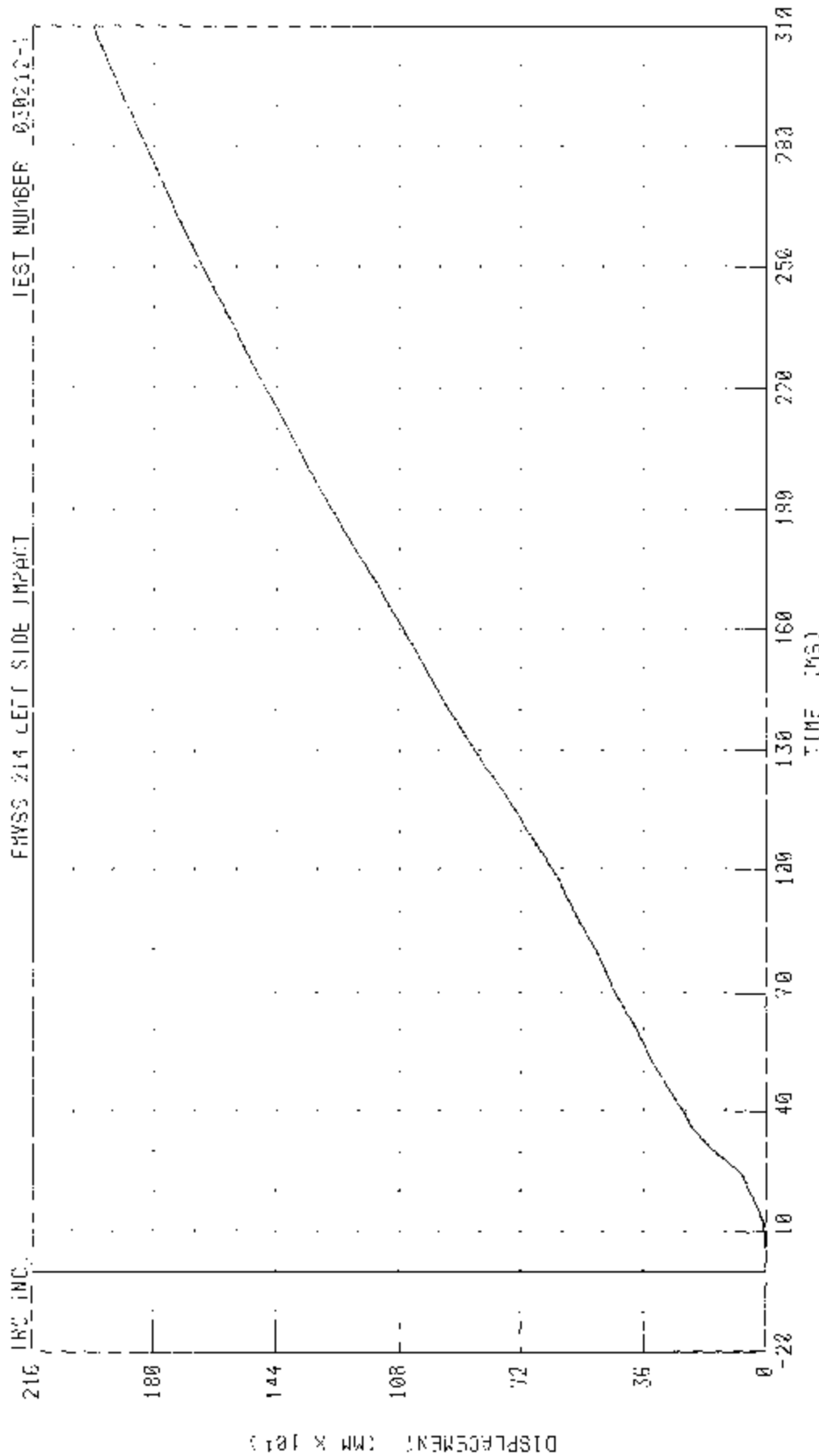
FMVSS 214 LEFT SIDE IMPACT



PEAK DATA 48 79 KM/H @ 31 12 MS; -0 02 KM/H @ 1 36 MS

CHANNEL: LRUW1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECT E
LEFT REAR DOOR UPPER CENTERLINE Y AXIS DISPLACEMENT



CHANNEL: L20Y01 FILTER: C4, CLASS 180

PEAK DATA: 1930.72 MM @ 310.00 MS; -0.01 MM @ 1.76 MS

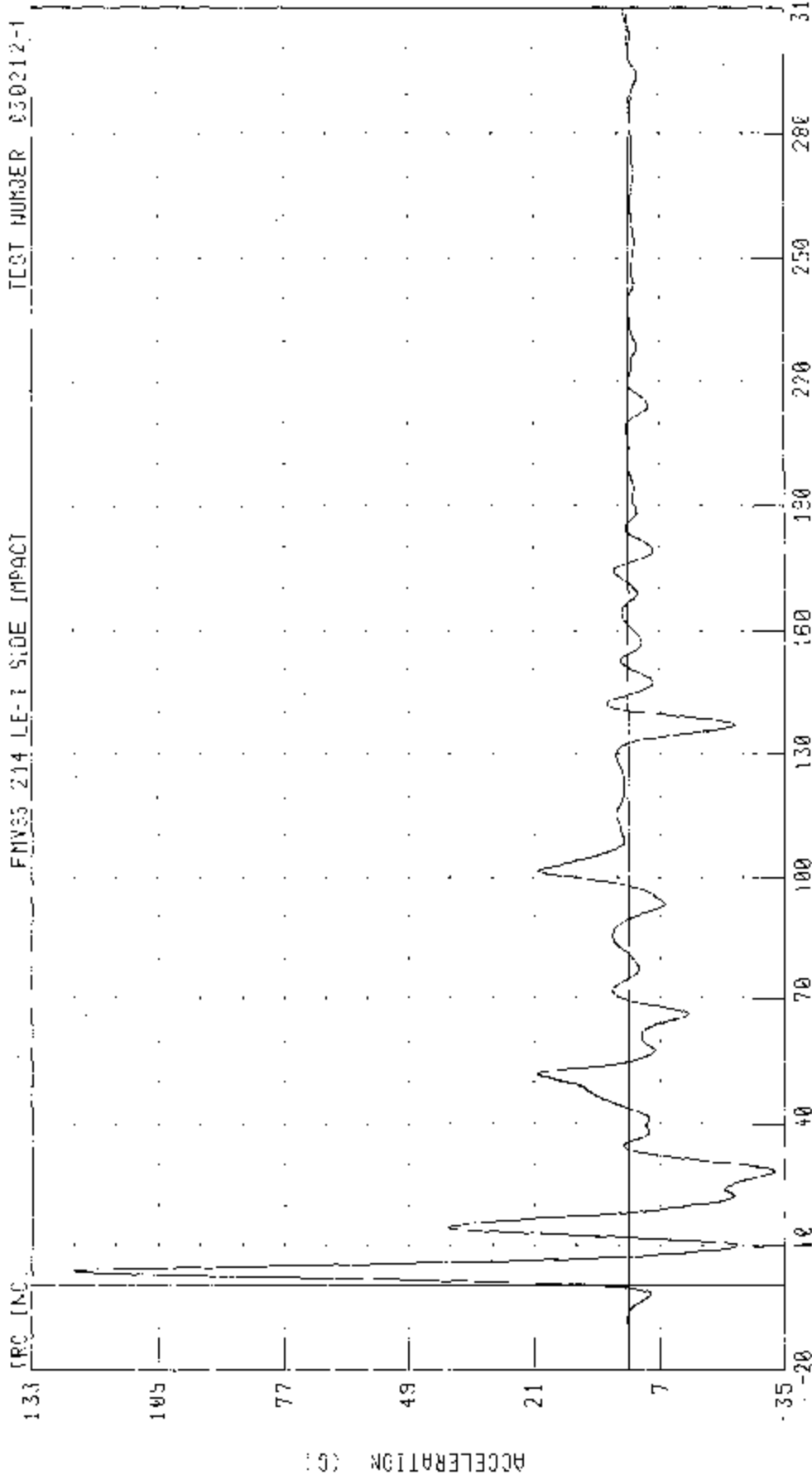
48/74 KPH 90 DEGREE SIDE IMPACT (MOVING OFFROAD) BARRIER) INTO LEFT SIDE OF 2003 PAZO PROTEGE 5

LEFT LOWER A-POST Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

133 (G) INC



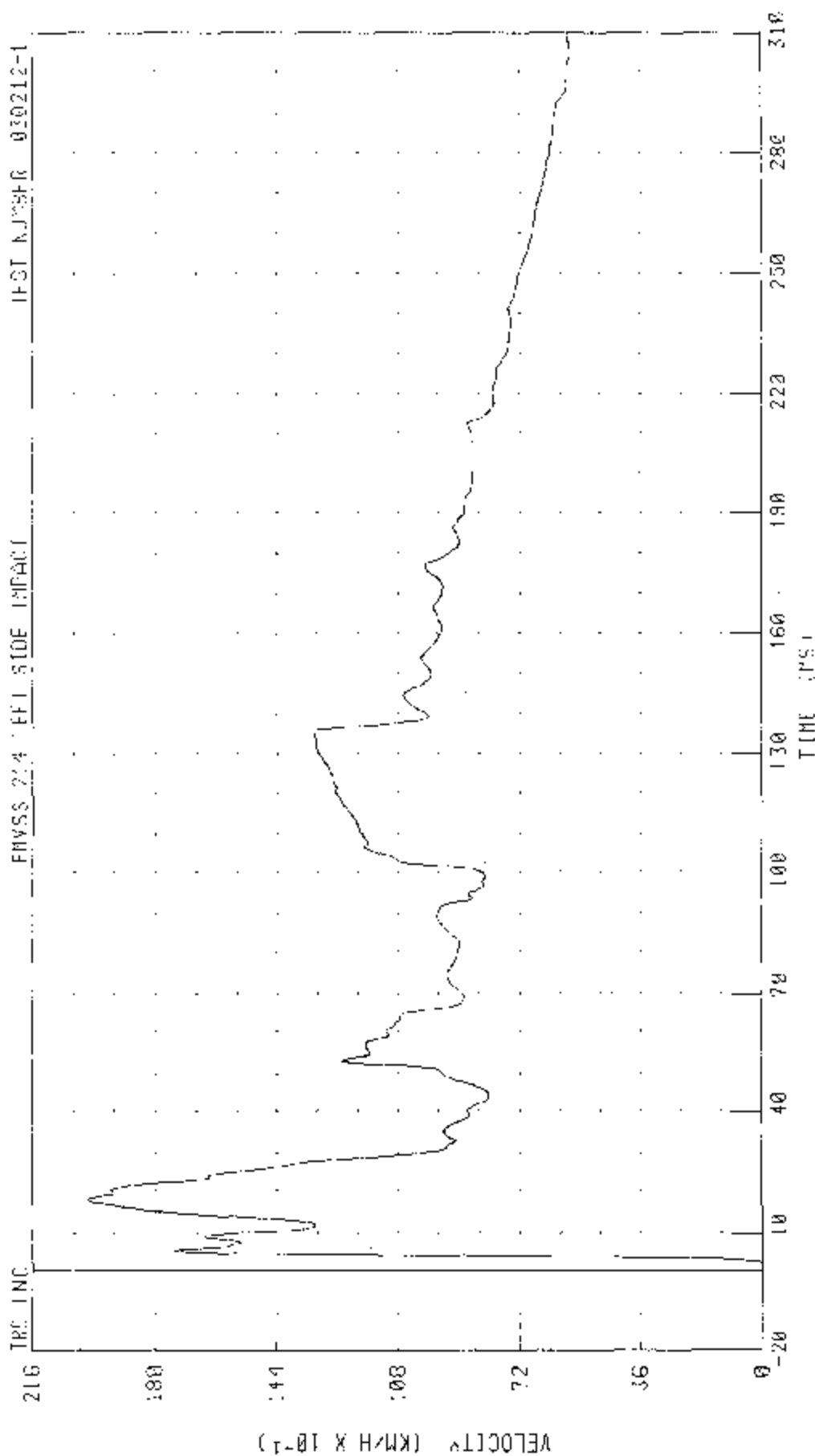
TIME (MS)

CHANNEL: ELAYG1 FILTER: 0.1 CROSS: 60

PEAK DATA 123.61 G @ 3.92 MS; -32.66 G @ 28.48 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2800 MA/HA PROJECT 5

LEFT LOWER A POST Y AXIS VELOCITY



CHANNEL: LAYV1 FILTER: CHL CL03 180

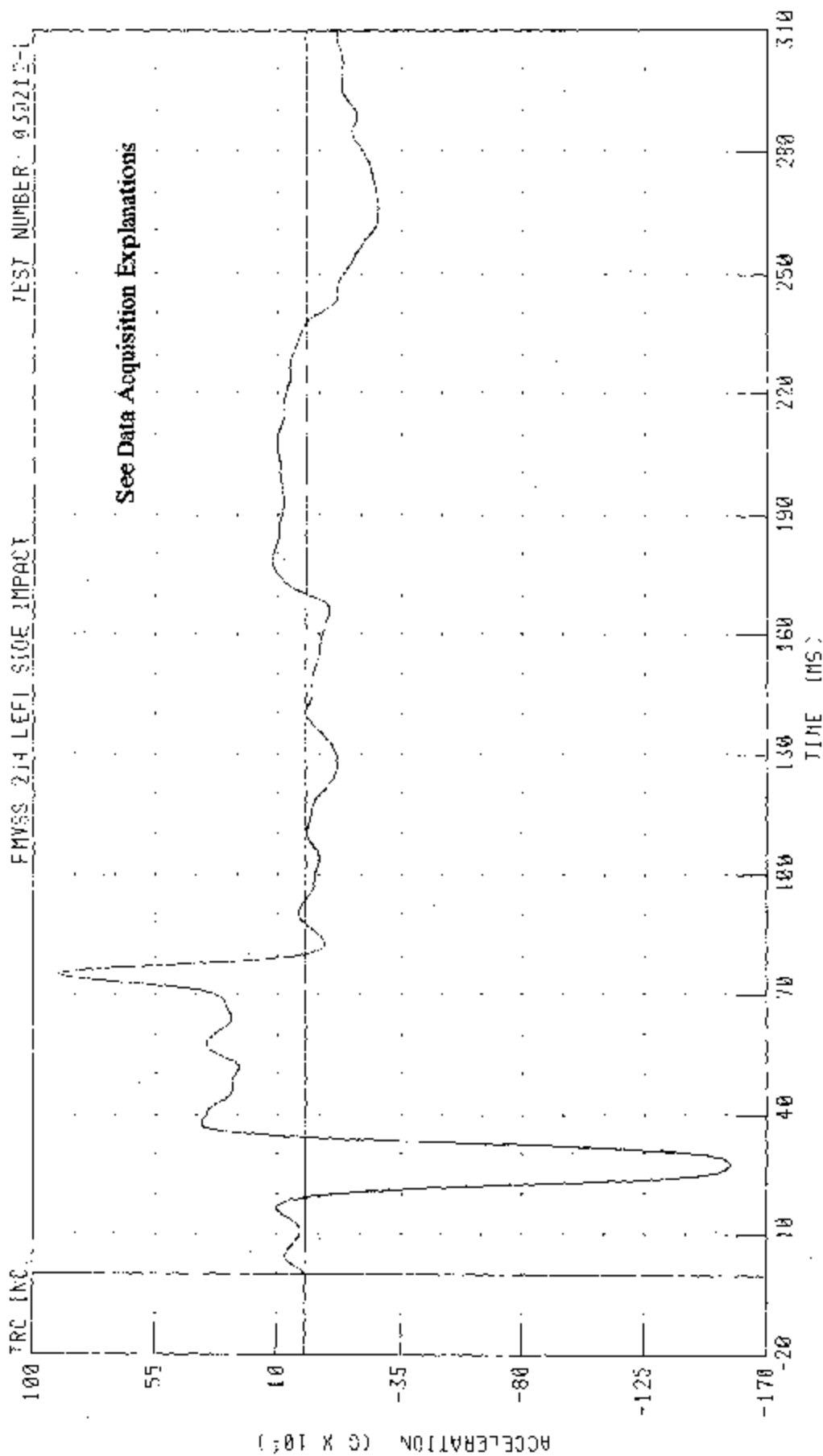
SCALE DATA: 18.55 KPH 0 17 84 MS -E 05 KPH 0 1 80 MS

48/74 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT SIDE OF A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: L MAYCT FILTER: C4 CLASS: S2

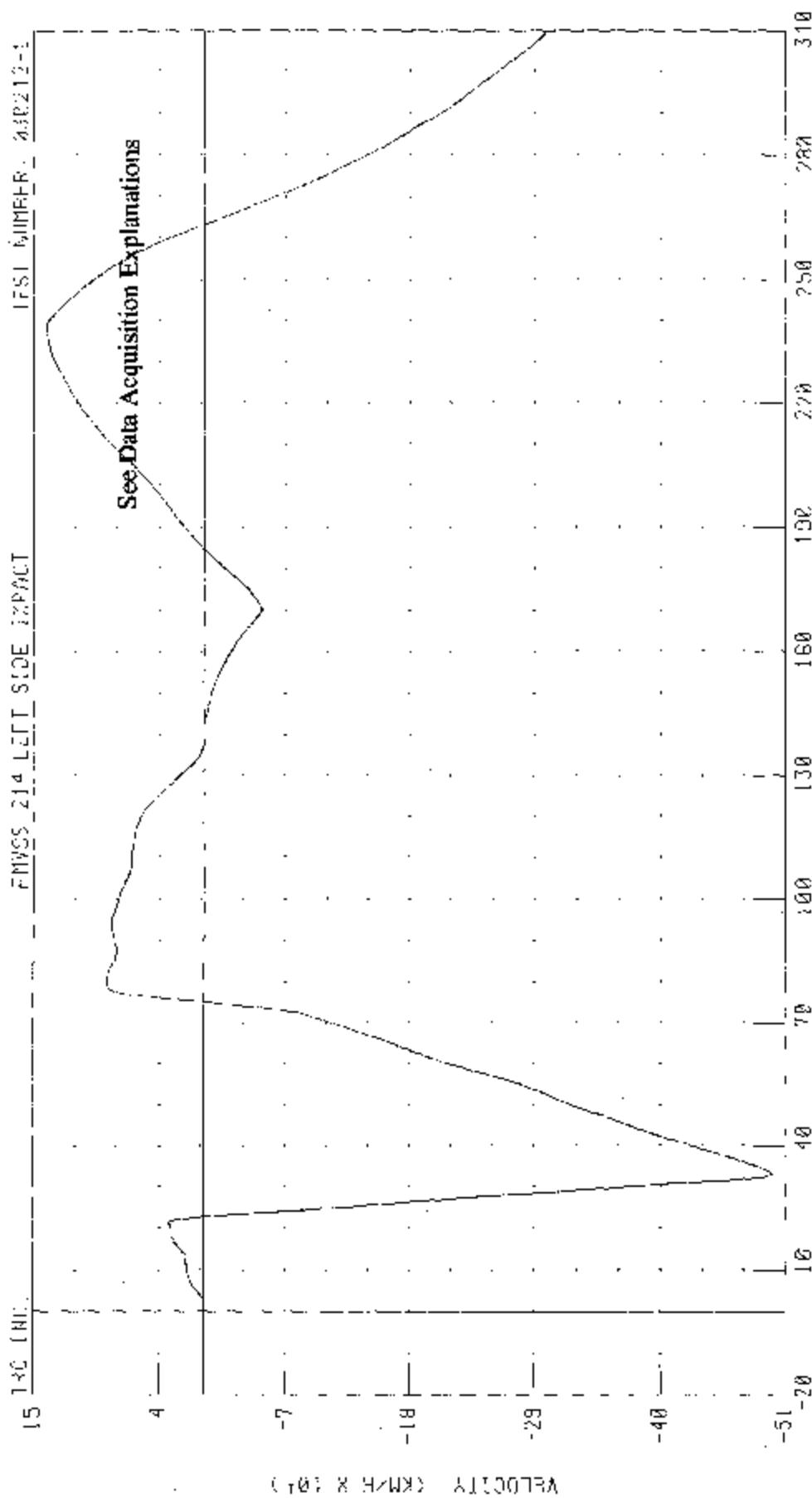
PEAK DATA: 909.45 G @ 75.12 MS, -1502.48 G @ 27.44 MS

48-24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT MECHANICAL POST Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 43R212-1



TIME (MS)

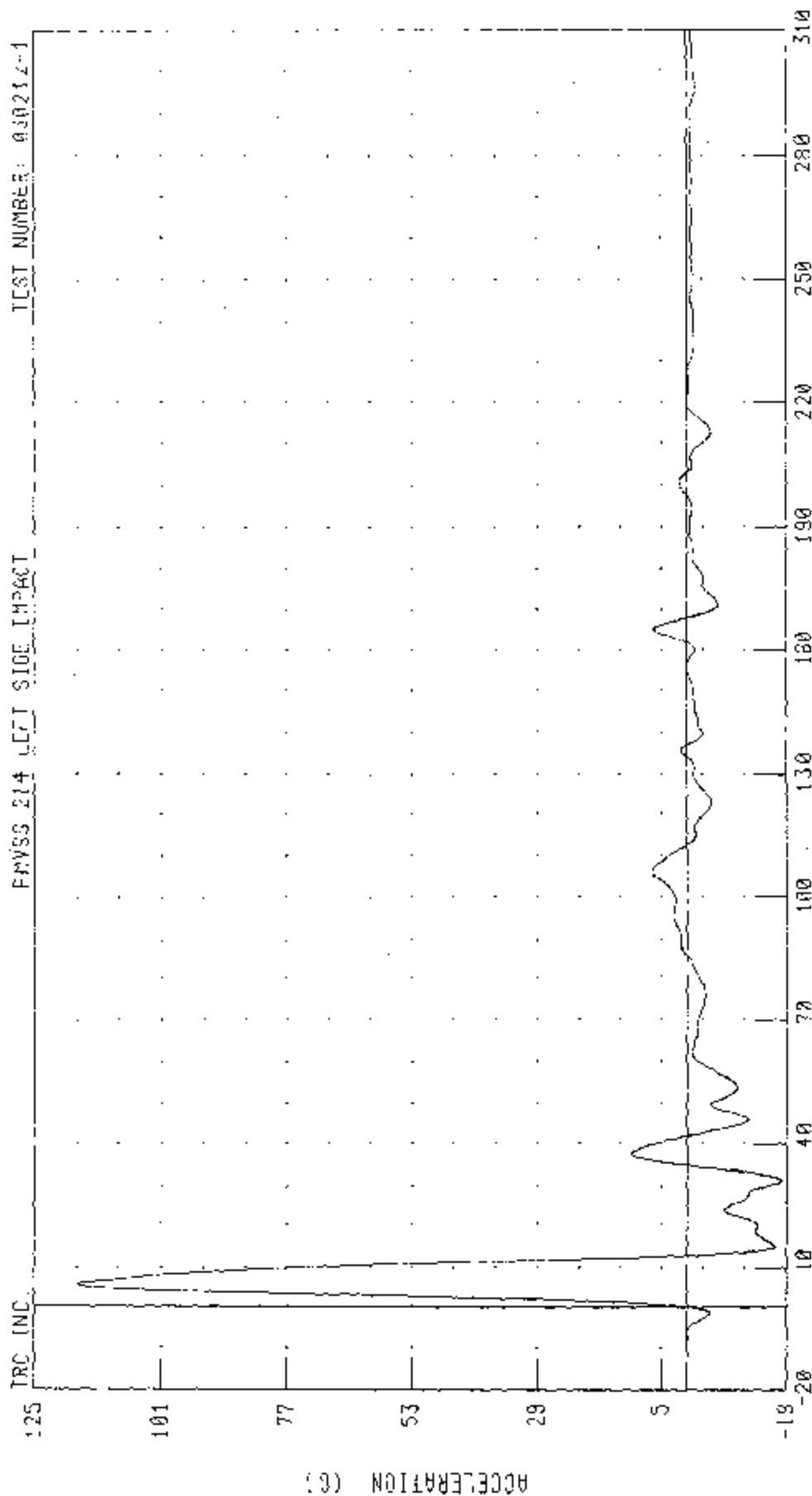
PEAK DATA: 138.10 KM/H @ 238.88 MS; 408.49 @ 33.12 MS

CHANNEL: CMVVI FILTER: CH CLASS: 190

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE 0- 2003 KAZDA PROTEGE 5

LEFT LOWER 8-POST Y-AXIS ACCELERATION

FRVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

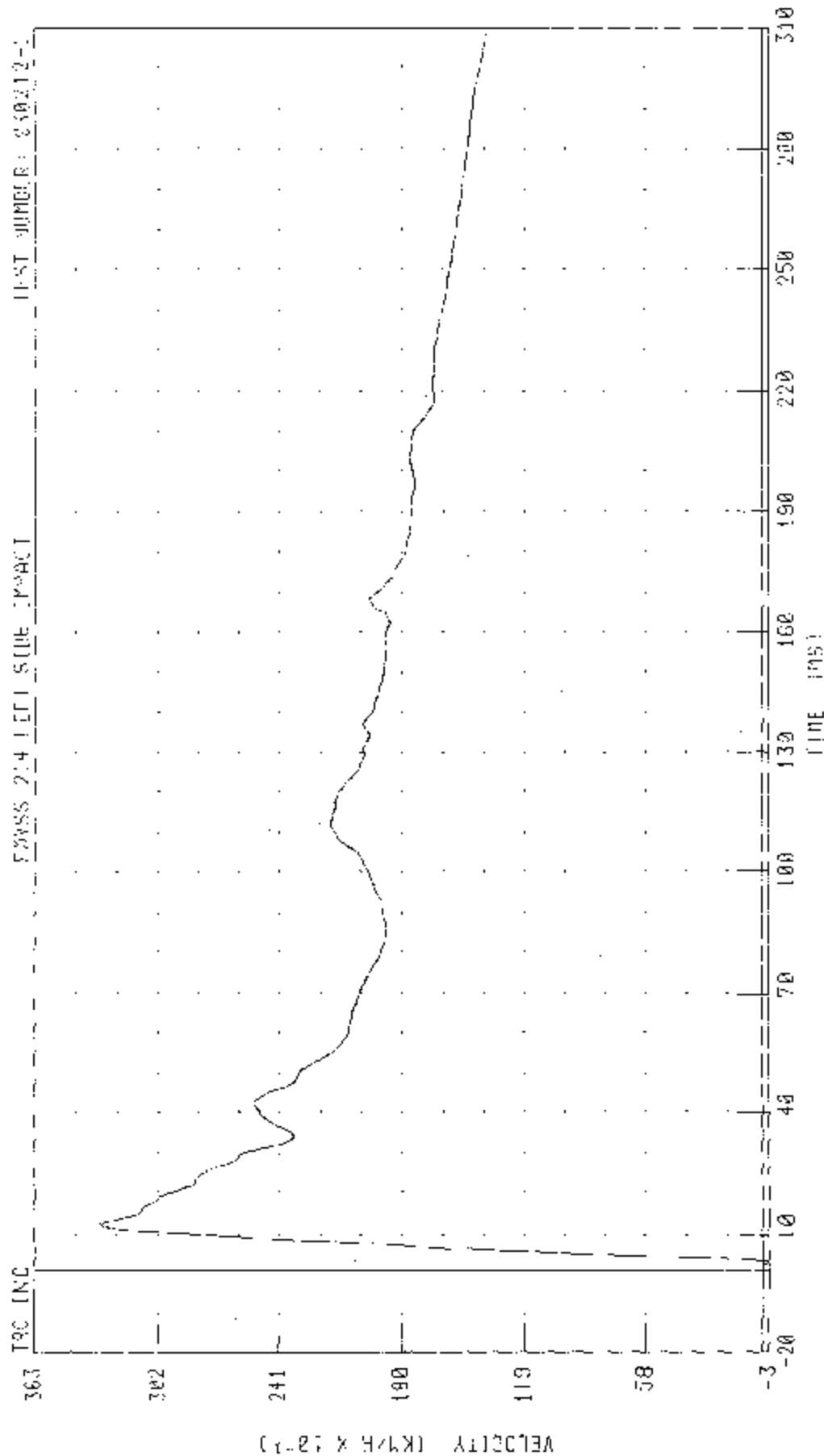


CHANNEL: LLBYG1 FILTER: CH CLASS 00

PEAK DATA: 117 20 0 5.52 MS; 18 01 0 0 31 44 MS

42/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

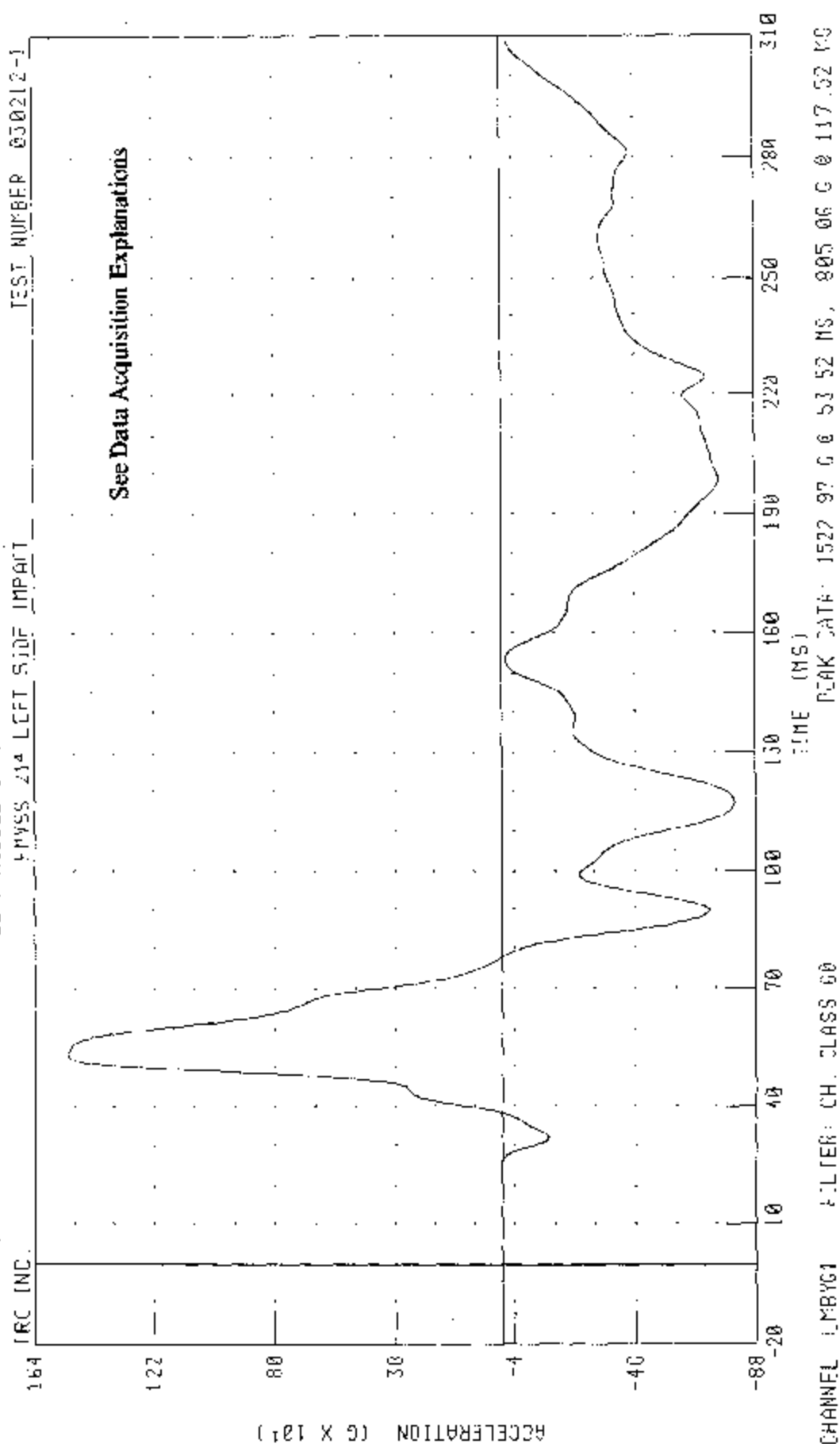
LEFT LOWER B POST Y AXIS VELOCITY



CHANNEL: LBYV1 FILTER: 50 CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 MAZDA PROTÉGÉ 5

LEFT MIDDLE B POST Y-AXIS ACCELERATION

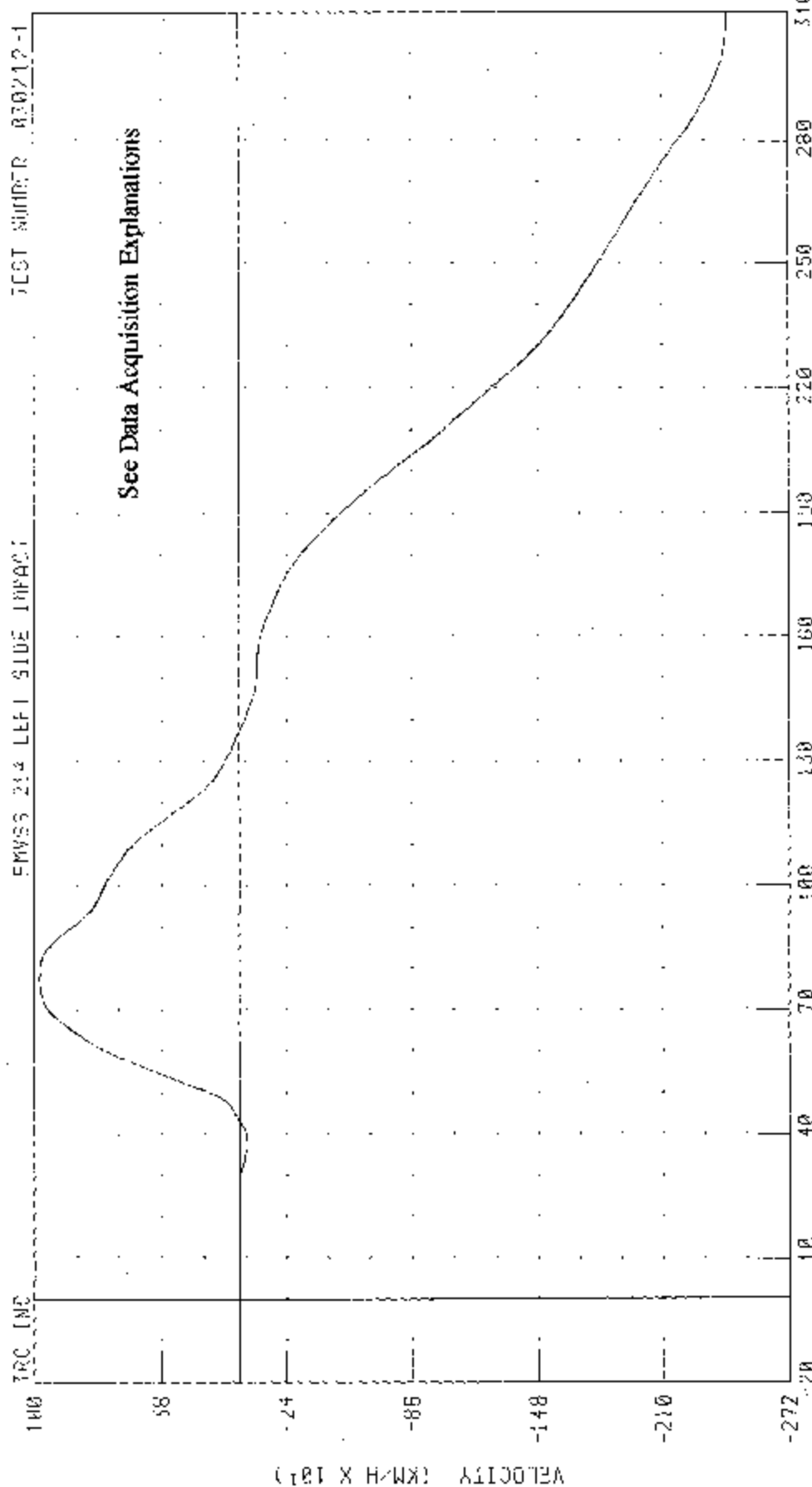


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT MIDDLE B-POST Y-AXIS VELOCITY

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: LMBVY1 FILTER: CH1 CLASS: 100

PEAK DATA: 977.39 KM/H @ 77.92 MS; -2427.35 KM/H @ 310.00 MS

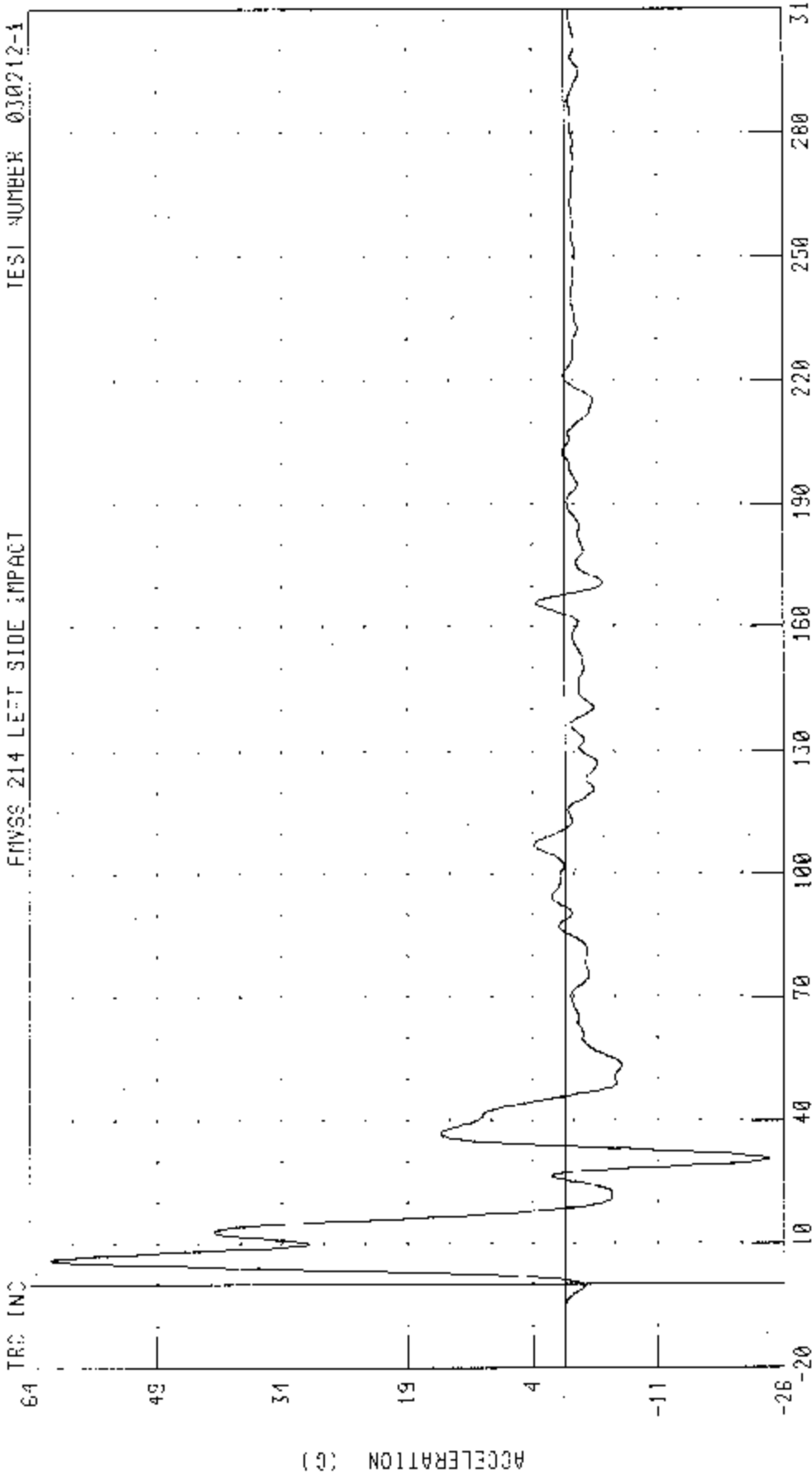
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT FRONT S-P, TRACK Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC

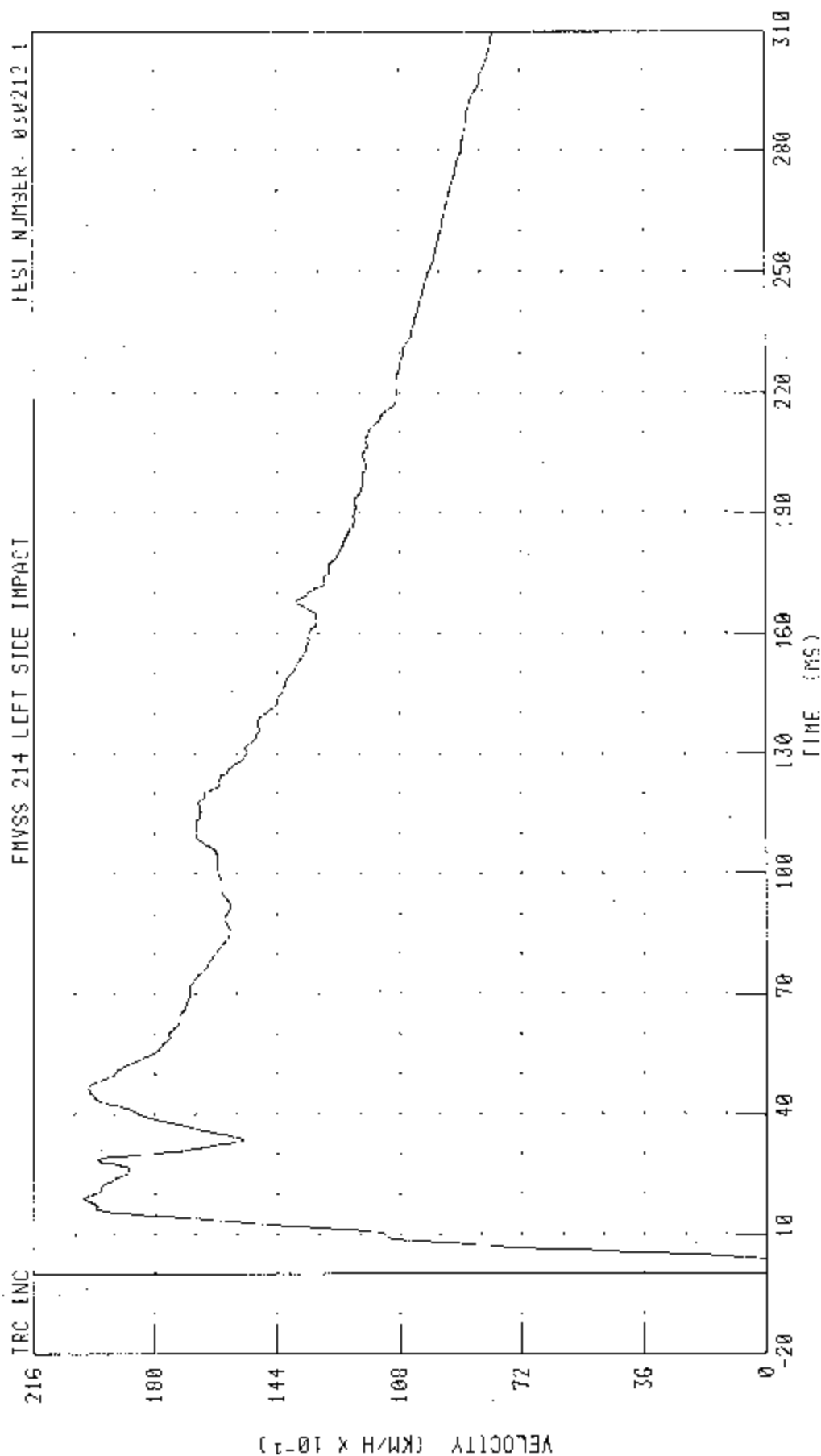


CHANNEL: LFTYC1 FILTER: CH CLASS 60

PEAK DATA: 61.60 G @ 6.08 MS; -24.33 G @ 30.64 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT FRONT SEAT TRACK Y AXIS VELOCITY



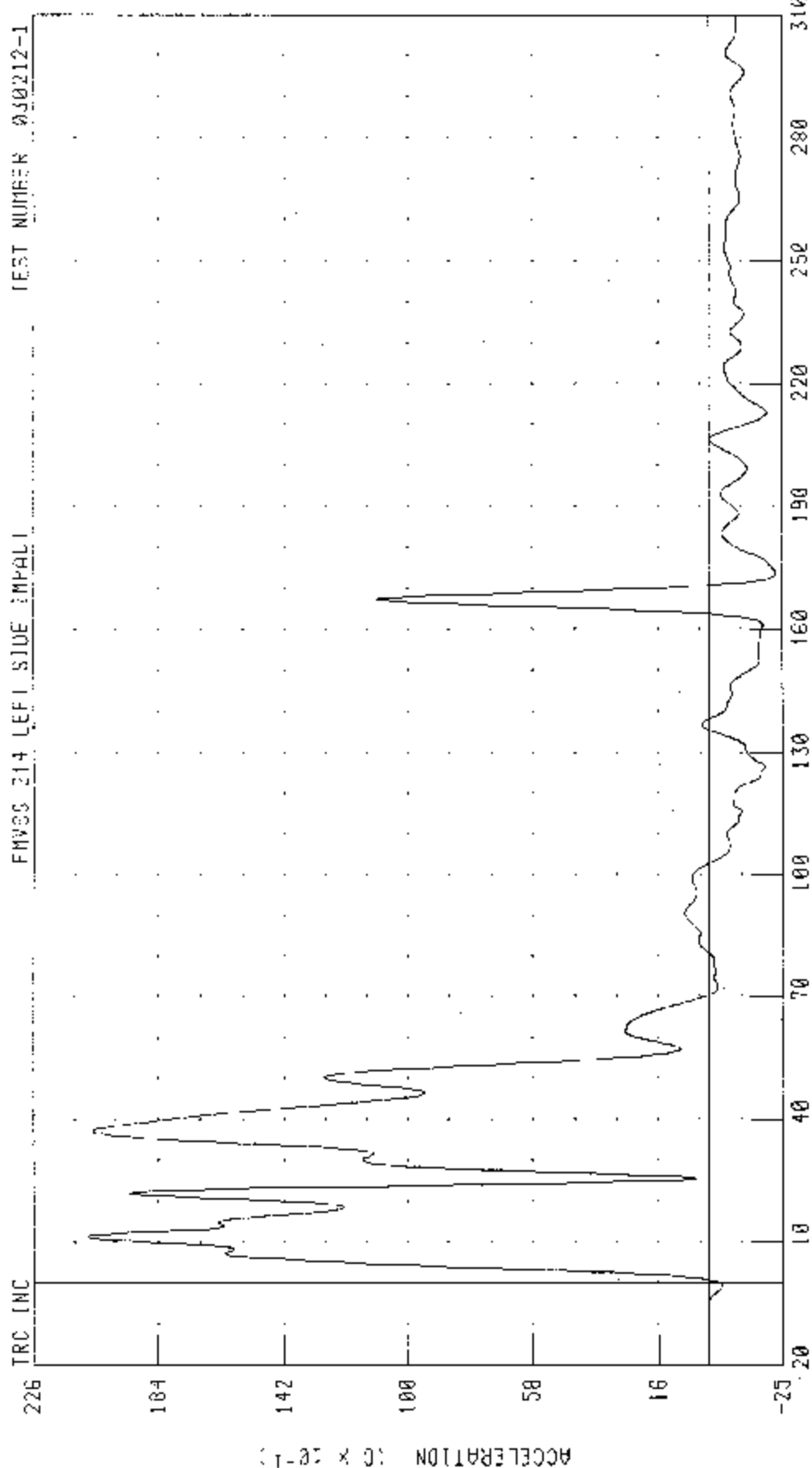
CHANNEL: LFTYV1 FILTER: CH CLASS 190

PEAK DATA: 20.14 KM/H @ 18.88 MS; -0.04 KM/H @ 2.06 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR SEAT TRACK Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL LRTY01 FILTER CH. CLASS 50

PEAK DATA 20 85 G @ 11 36 MS; -2 28 G @ 173.84 MS

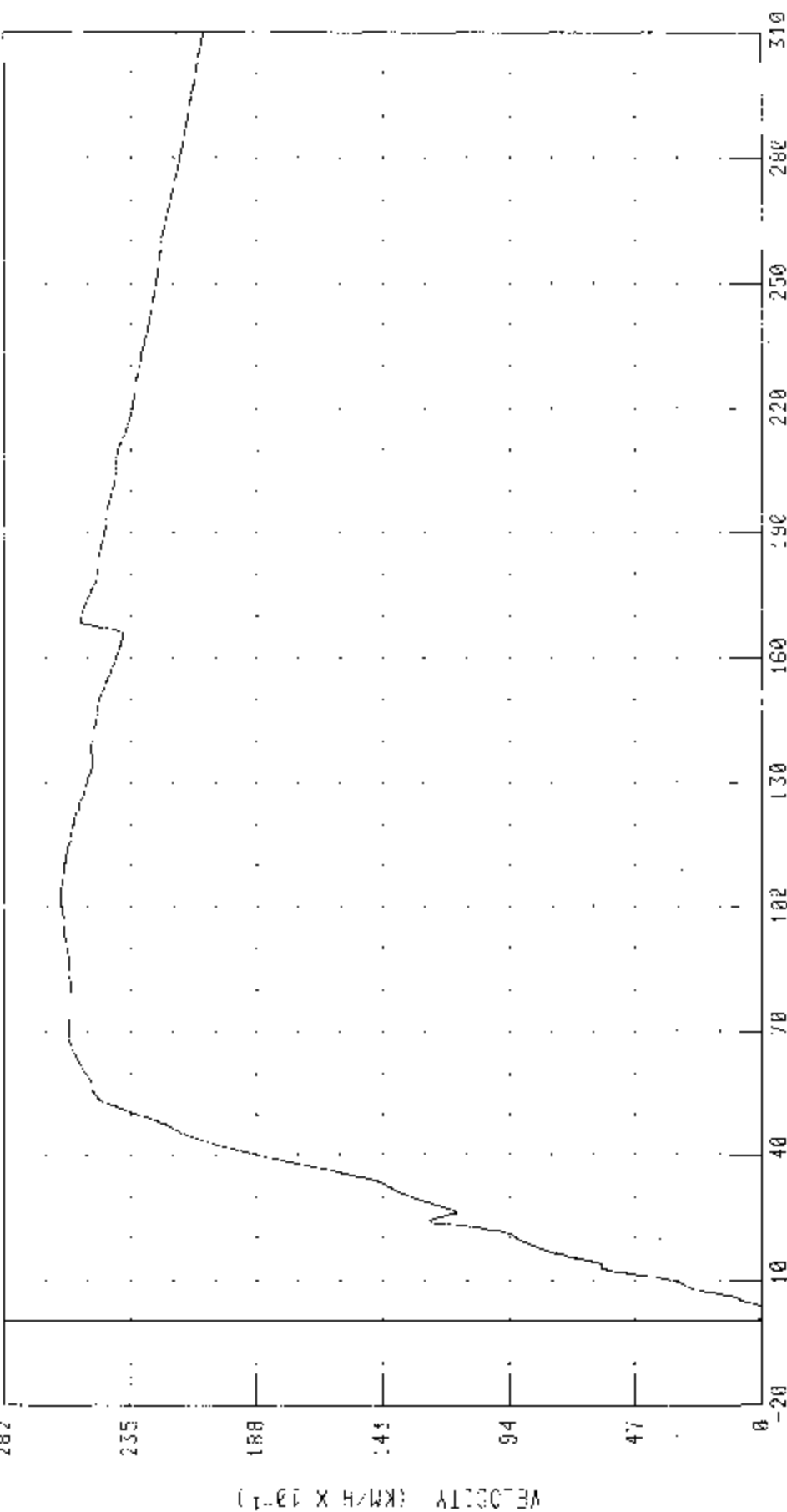
48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2ND MAZDA PROTECTIVE

LEFT REAR SEAT CROCK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

TRC INC.



TIME (MS)

PEAK DATA: 26.08 KM/H @ 160.04 MS; -0.02 G/H @ 2.50 MS

CHANNEL: LR1YV1 FILTER: 125 CLASS 180

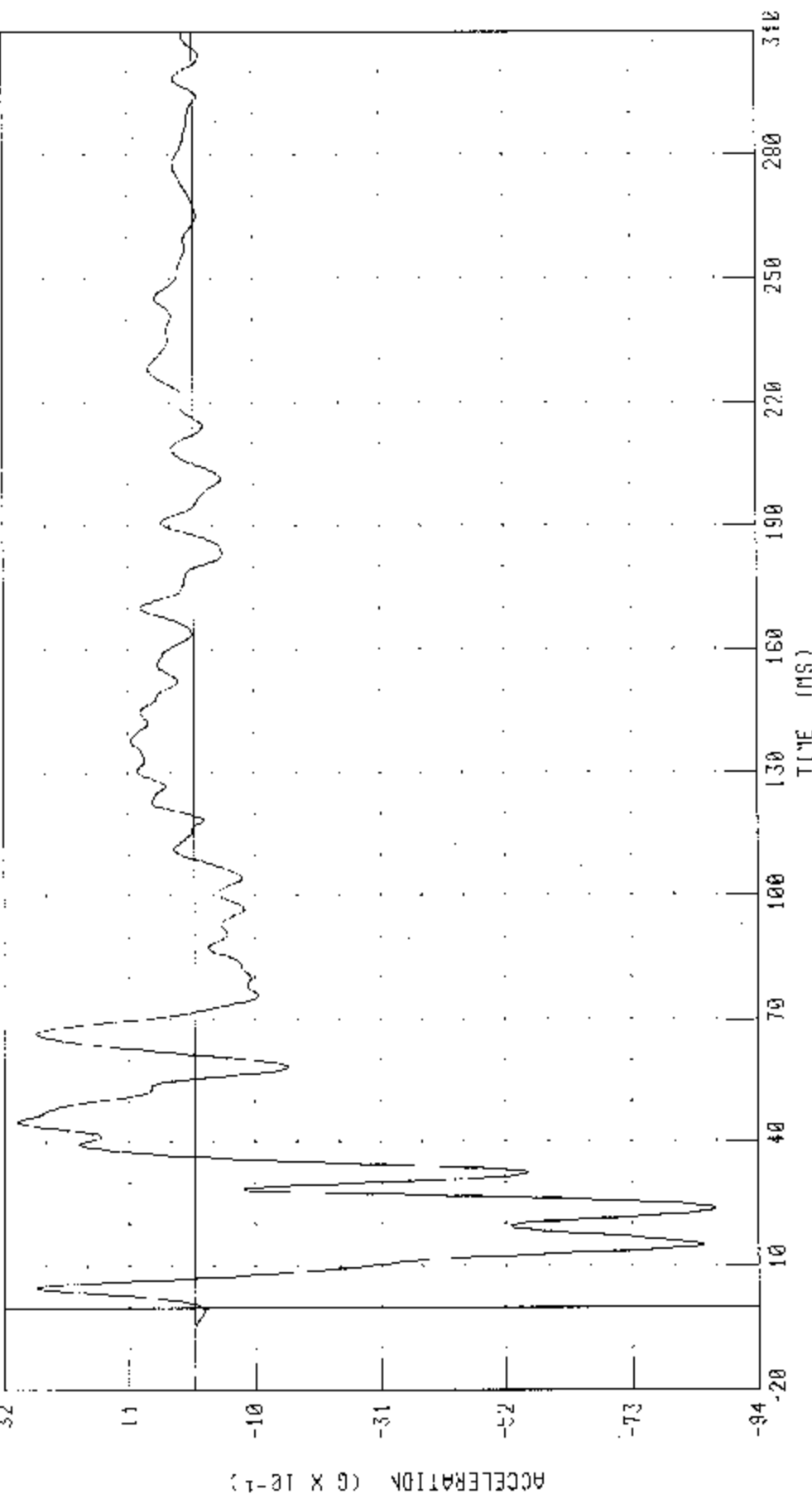
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZDA PROTEGE 5

VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

TEST NUMBER: 030212-1

TRC INC.

FMVSS 214 LEFT SIDE IMPACT



CHANNEL: VCCX31 FILTER: CH. CLASS 60

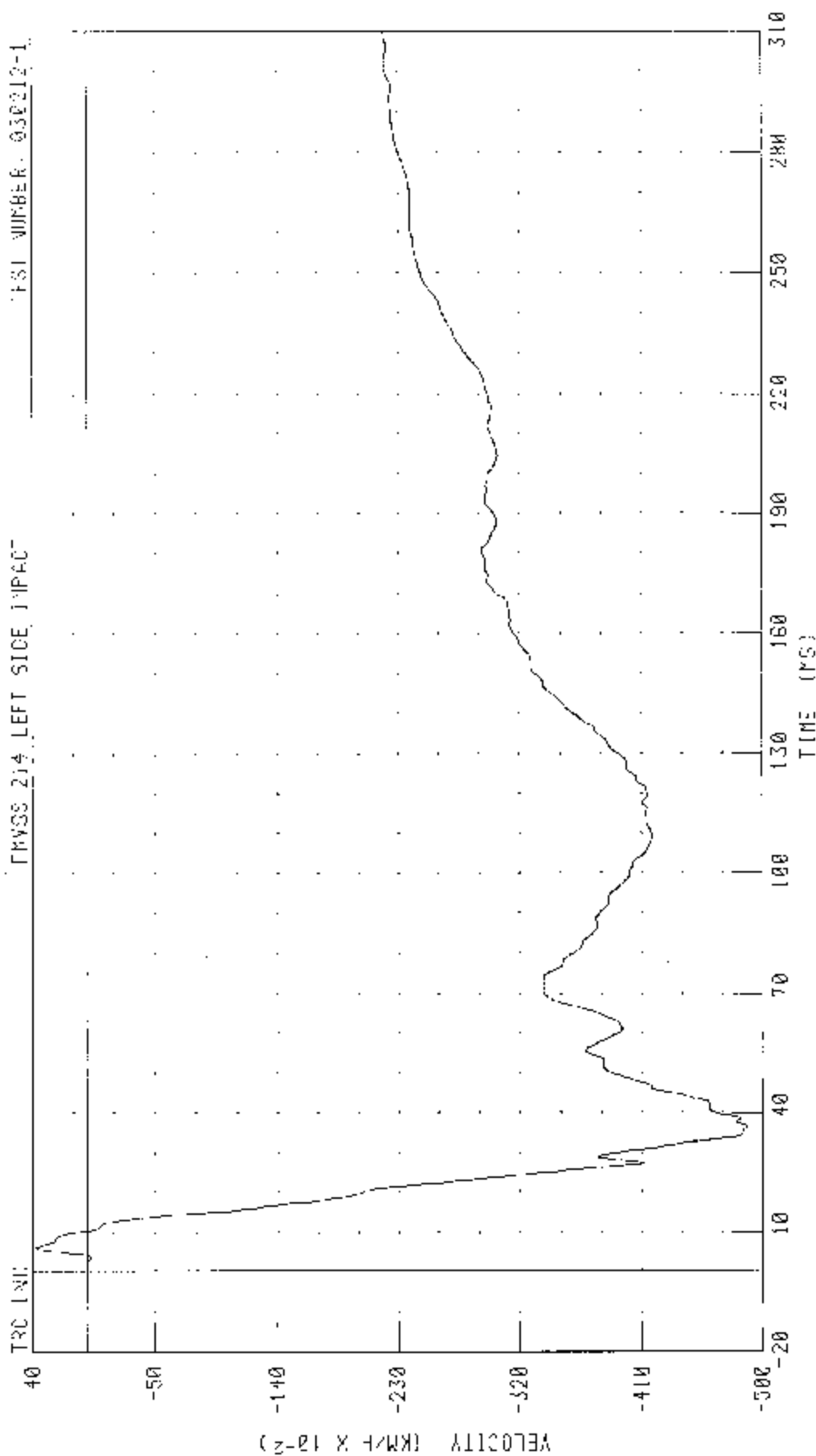
PEAK DATA: 3.00 G @ 45.20 MS, -8.57 G @ 23.60 MS

48/24 KM/H 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO 1-1 SIDE OF 2003 MAZDA PROTEGE 5

VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

TEST NUMBER: 030212-1

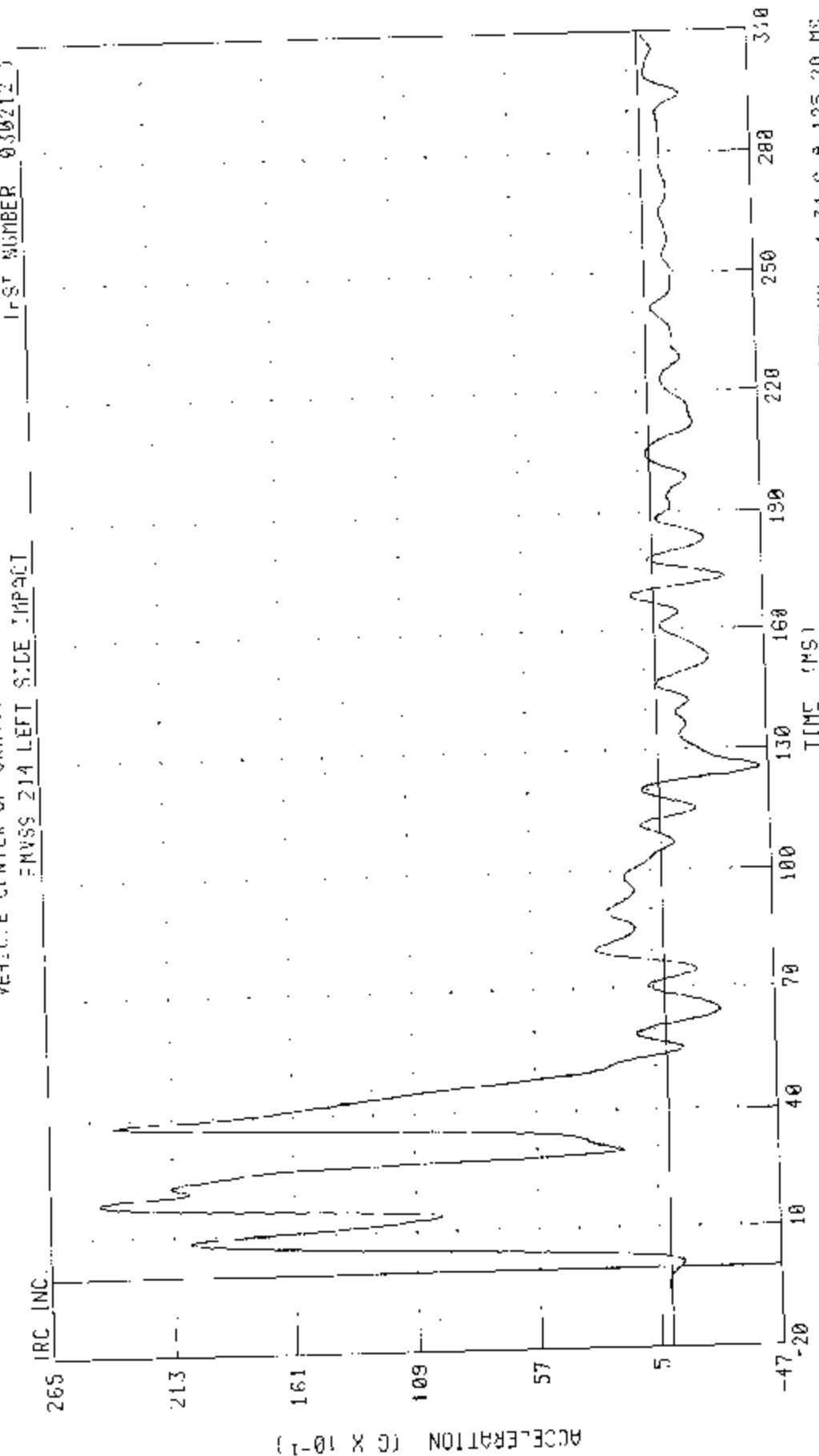
FMVSS 204 LEFT SIDE IMPACT



CHANNEL: VCUXV1 - L1 - L1 - CH. CLASS 150

PEAK DATA: 0.38 KM/H @ 6.38 MS, 4.00 KM/H @ 36.48 MS

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECT 5
 VEHICLE CENTER OF GRAVITY Y AXIS ACCELERATION
 TEST NUMBER 030212-1

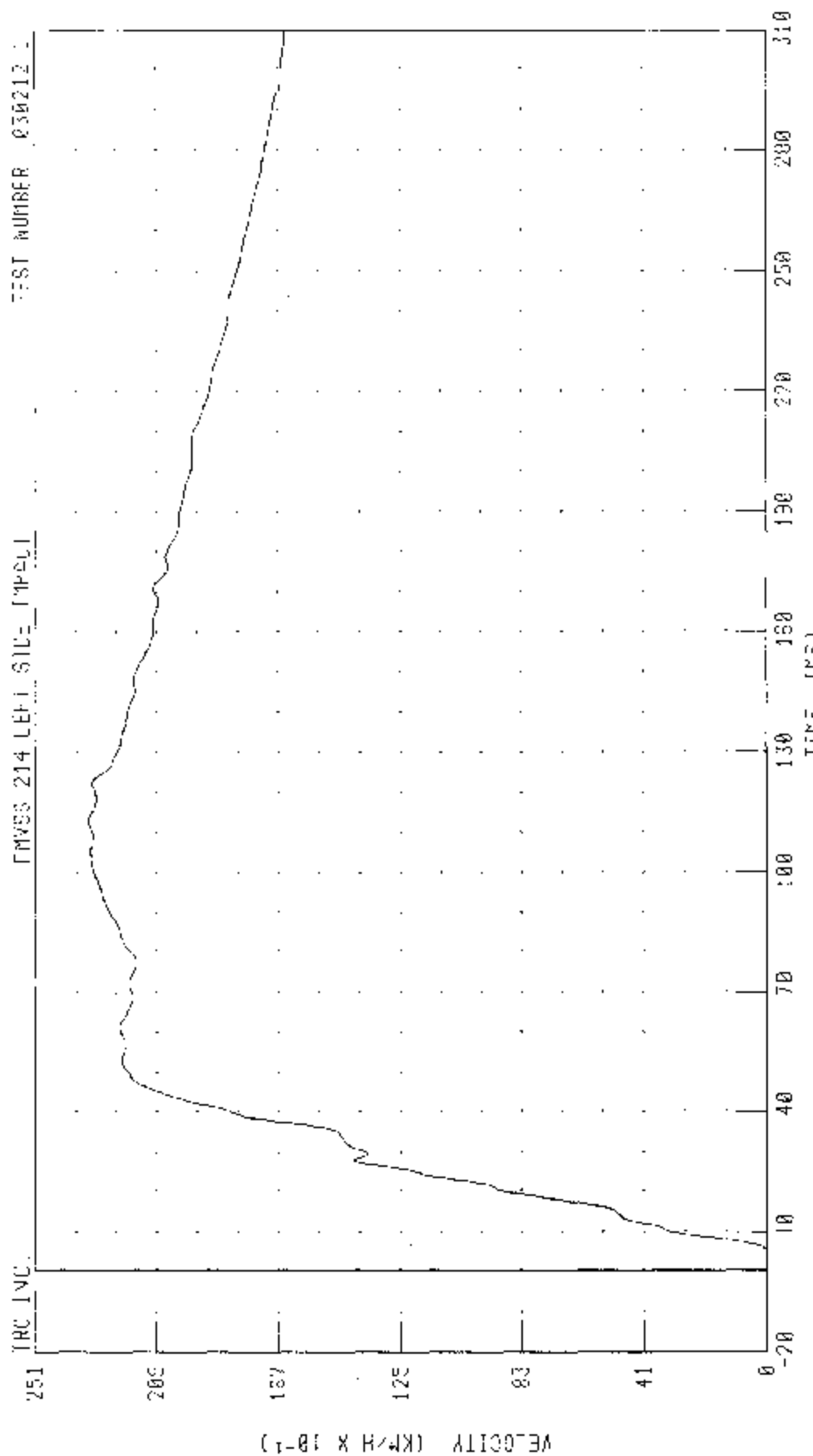


PEAK DATA: 24 42 G @ 18.72 MS, -4 34 G @ 125.20 MS

CHANNEL VCCYG1 FILTER CH CLASS 60

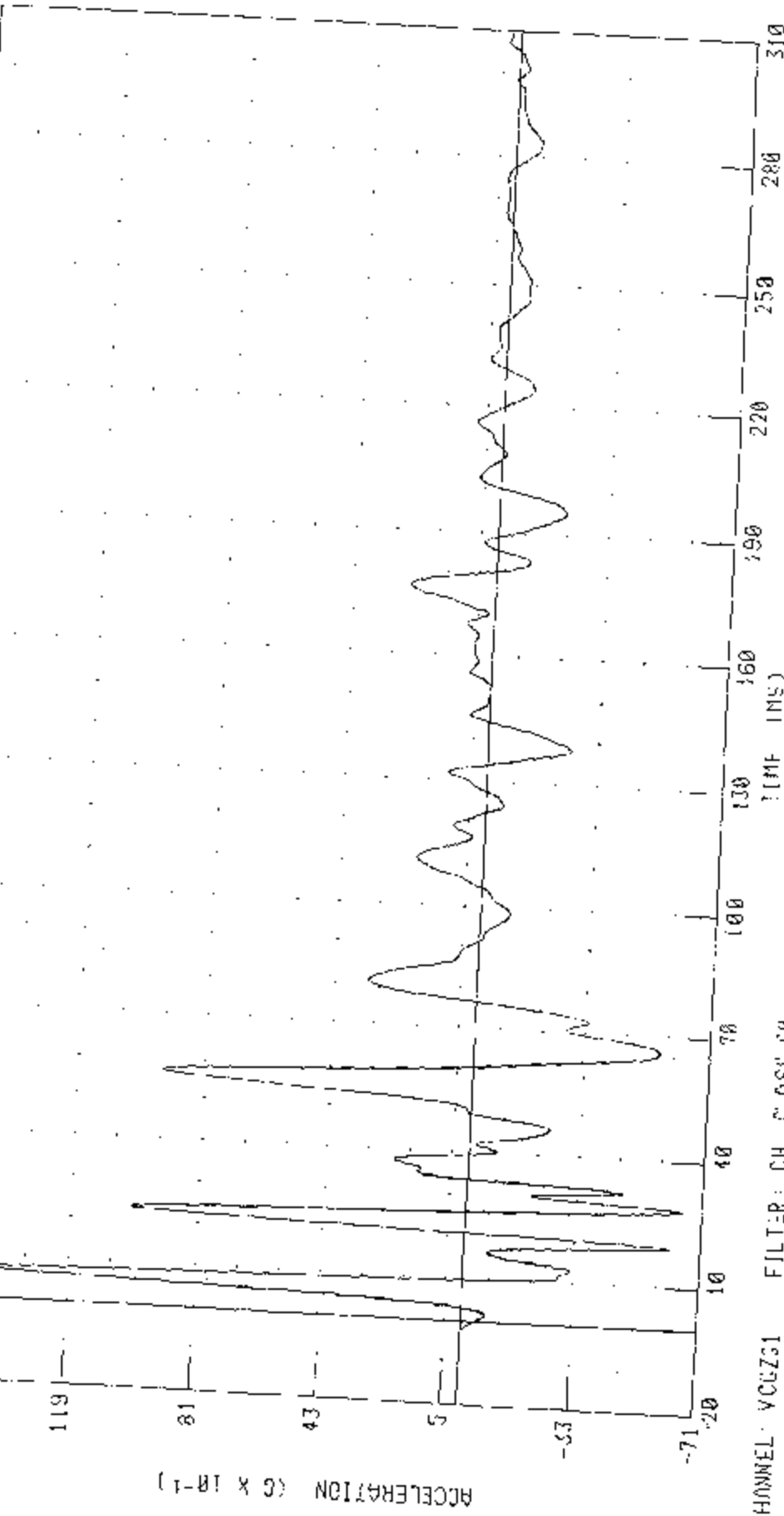
48/24 4PH 90 DEGREE SIDE IMPACT (MOVING VEHICLE BARRIER) INTO LEFT SIDE OF 2003 MPZDA PROTEGE 5

VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY



48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
 VEHICLE CENTER OF GRAVITY 7 AXIS ACCELERATION
 FV03 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: V00Z01 FILTER: CH. CLASS 00

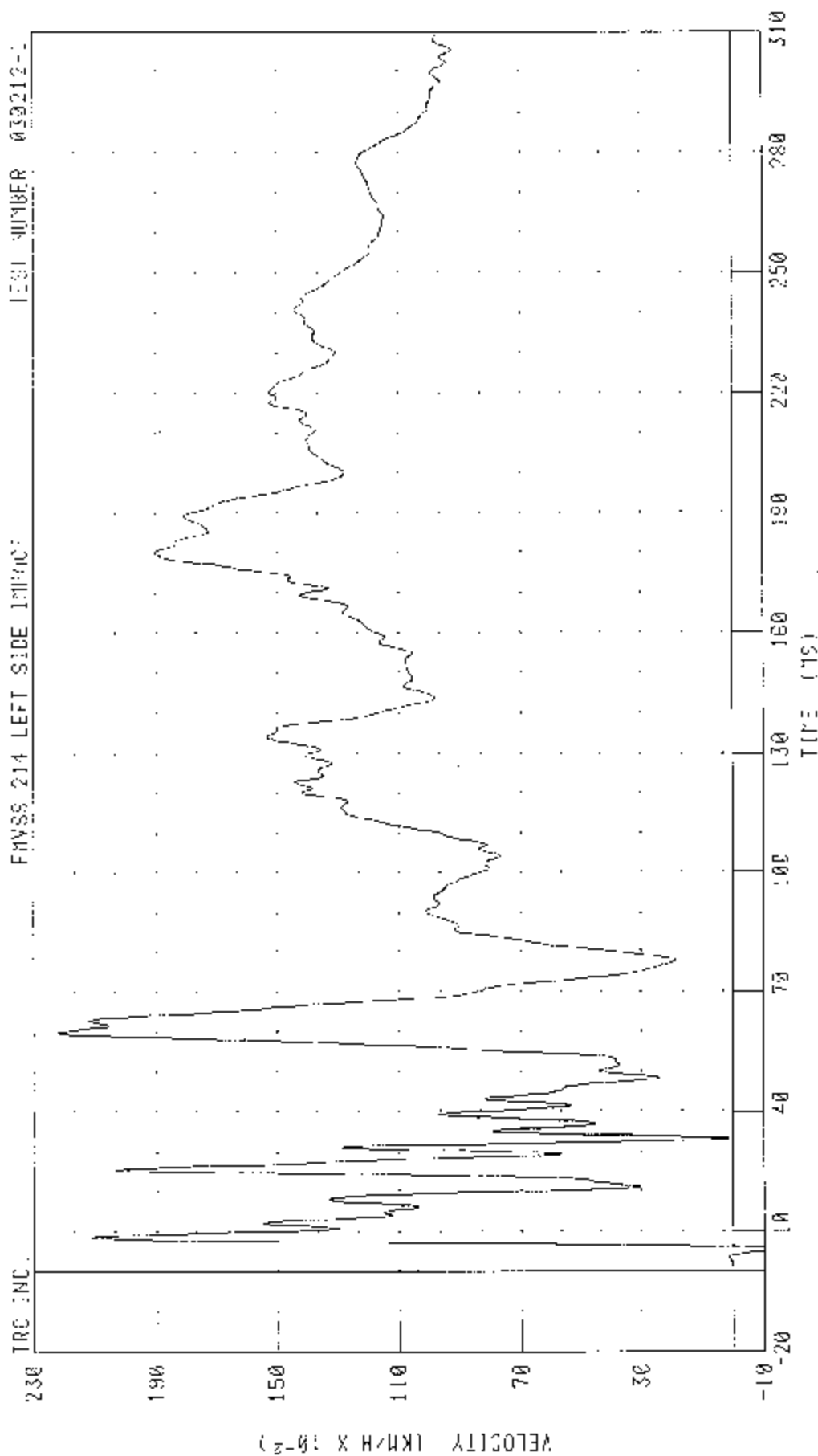
PEAK DATA: 14.39 G @ 6.96 MS; 3.52 G @ 28.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE WORKPIEC) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

VEHICLE CENTER OF GRAVITY 7-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



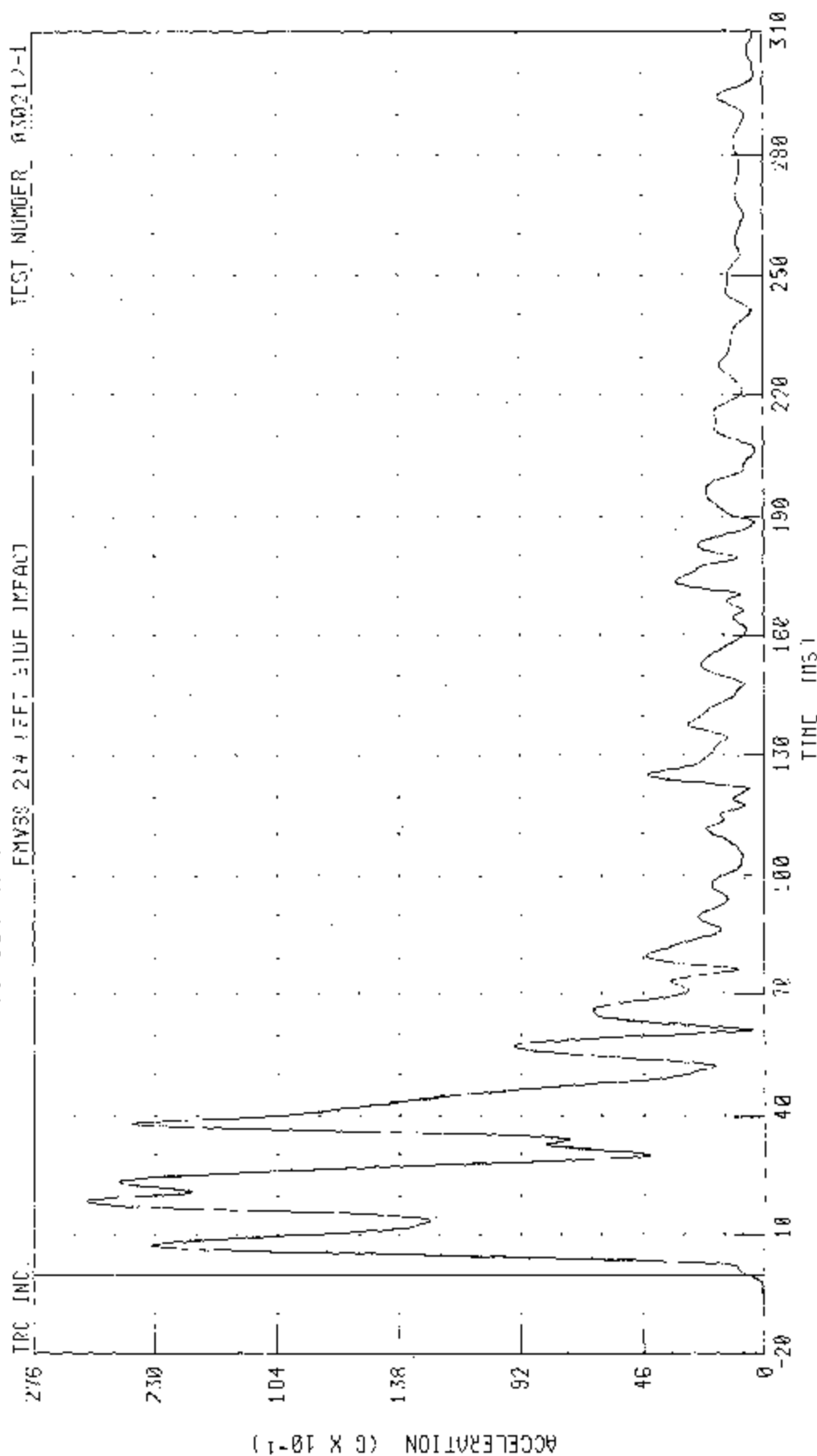
CHANNEL: V007V1

FILTER: CH CLASS 180

TIME (MS)

PEAK DATA: 722 KPH @ 58.92 MS; -0.16 KPH @ 3.30 MS

48/24 KPH 90 DEGREE STIFF IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2023 MAZDA PROTEGE S
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



PEAK DATA: 25 58 G @ 18 80 MS, 0 00 G @ 15 60 MS

CHANNEL VLOC31 FILTER CH. CLASS 50

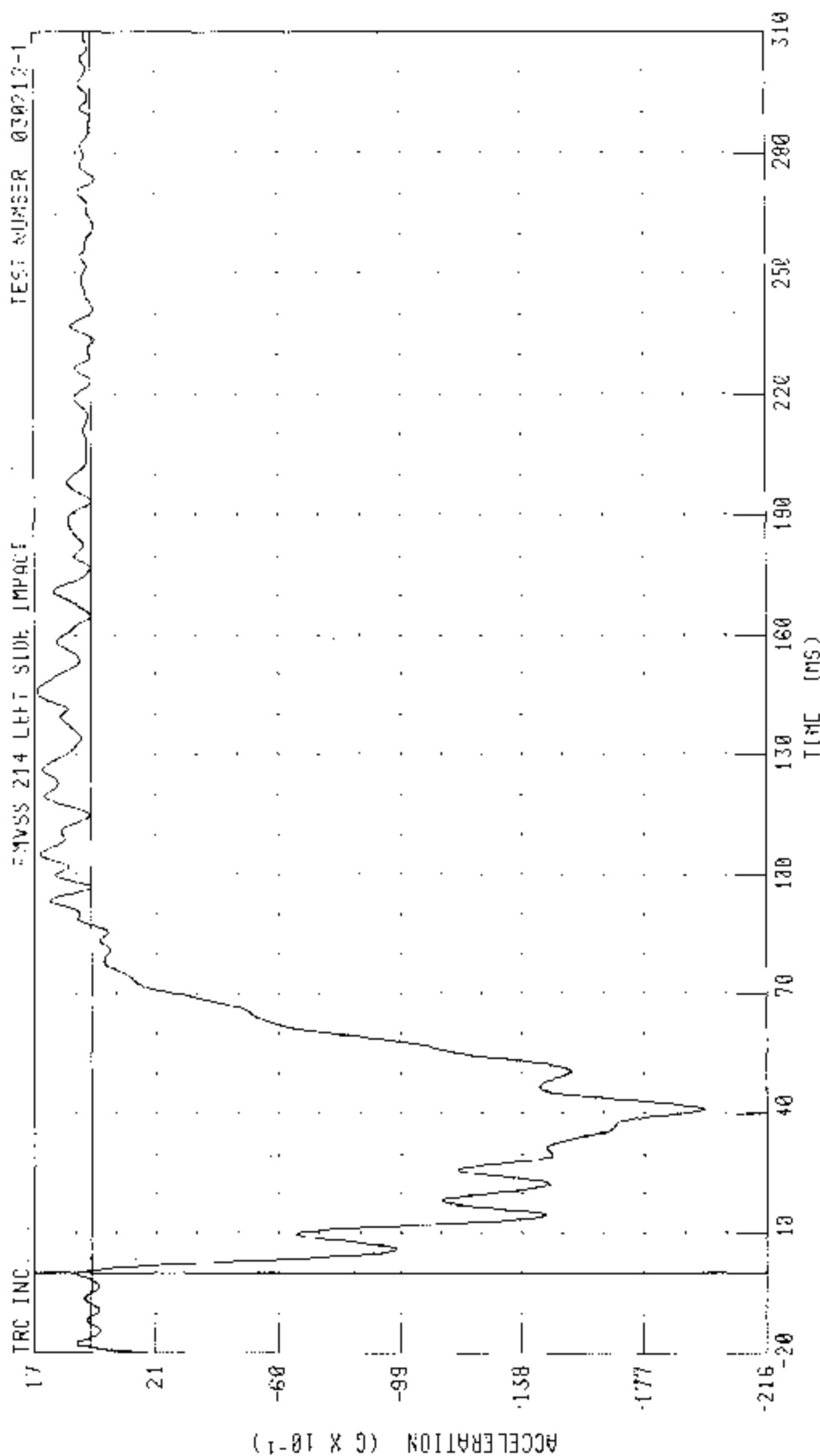
MDB Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NISSAN FRONTIER S

NDB CENTER OF GRAVITY X-AXIS ACCELERATION



PEAK DATA: 1 72 G @ 146 40 MS; -19 58 G @ 41 20 MS

CHANNEL: BCGXG1 FILTER CH. CLASS 50

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MA704 ROFFCE S

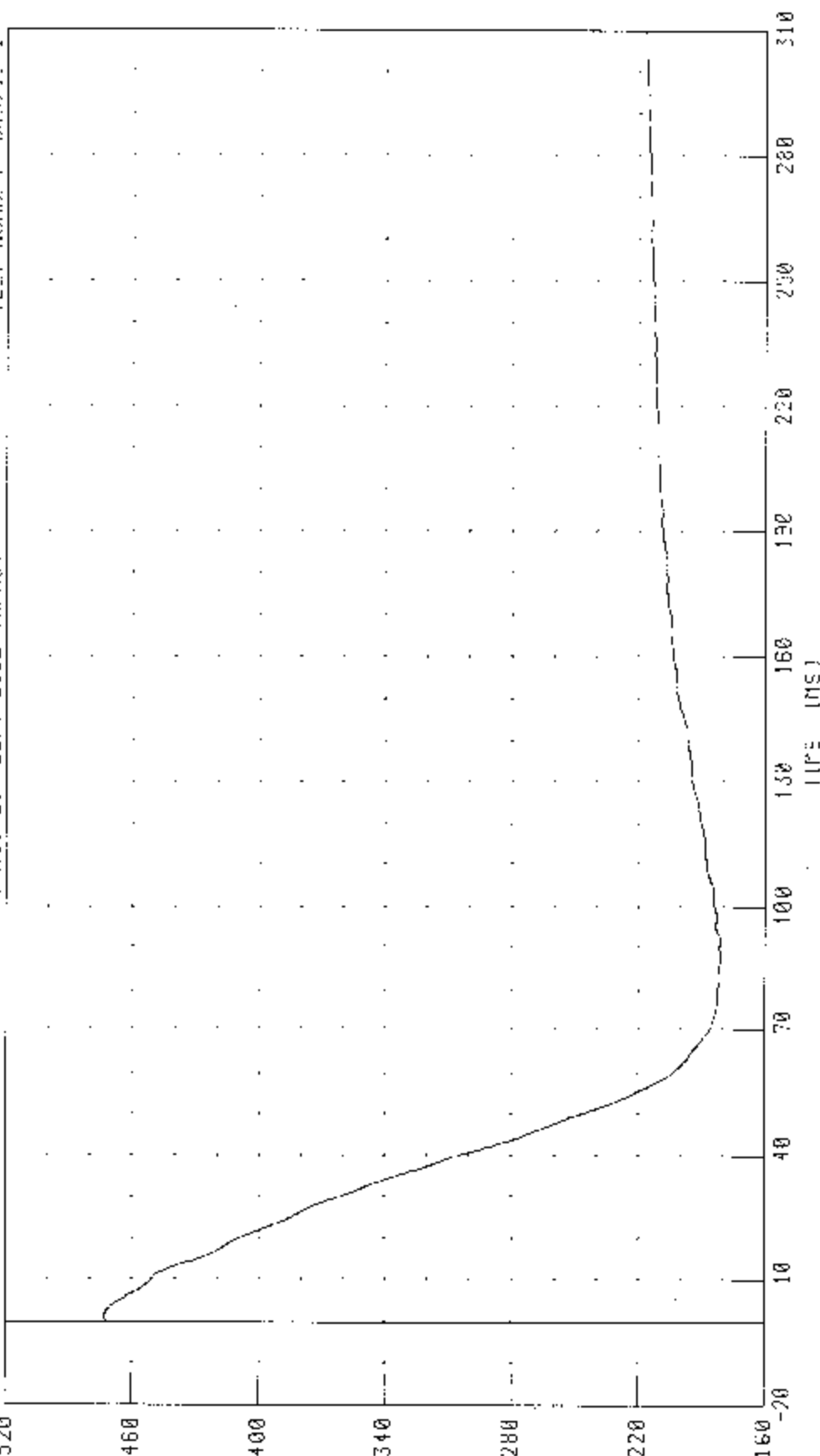
FOR CENTER OF GRAVITY X-AXIS VELOCITY

TRC INC.

CHYSS 214 LEFT SIDE IMPACT

TEST NUMBER 000212-1

VELOCITY (KM/H X 10⁻¹)

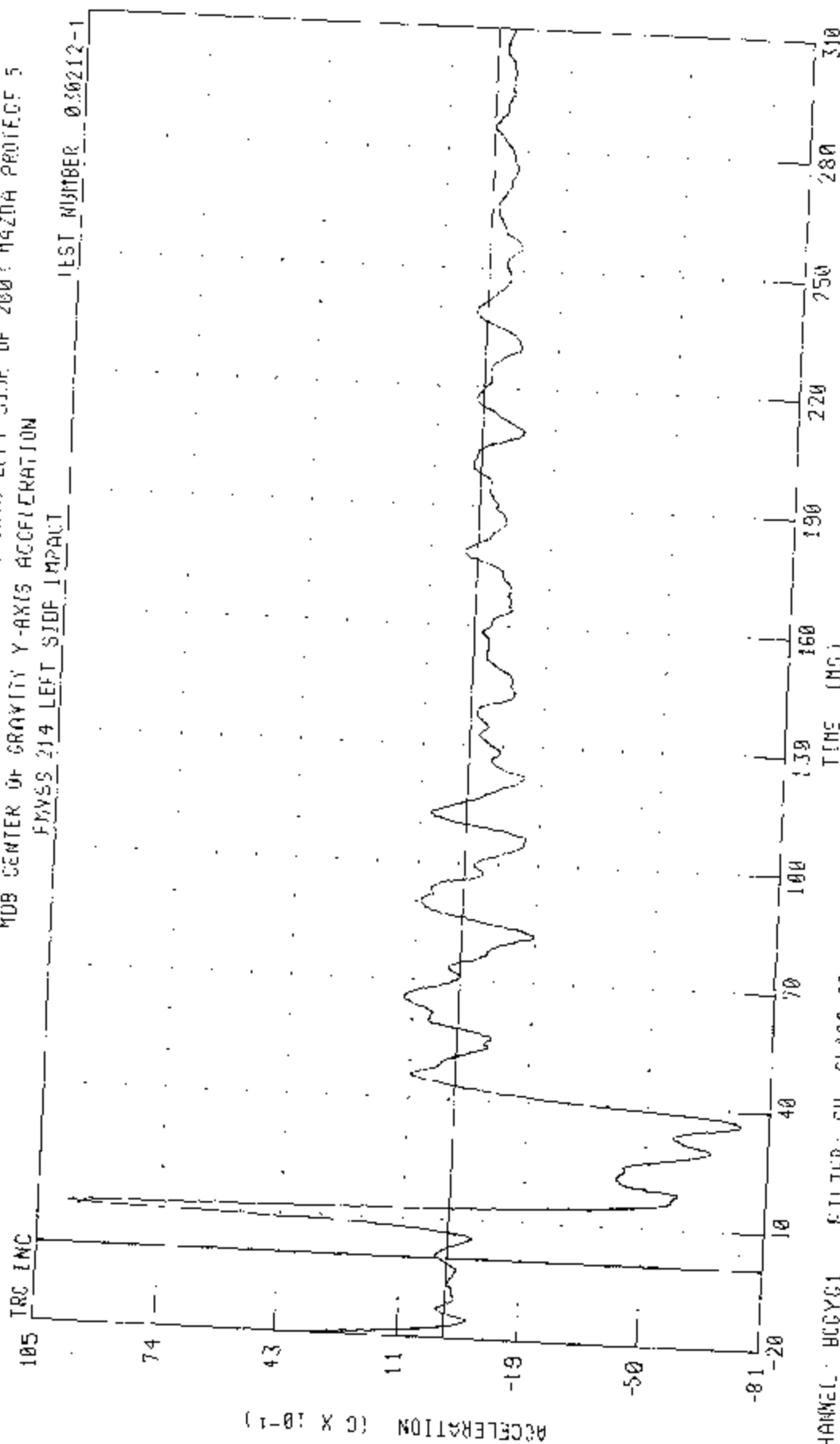


CHANNEL BCCXY1 FILTER CH CLASS 100

PEAK DATA 47.30 KM/H @ 1.52 MS; 19.06 K1/H 3 97.44 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2007 MAZDA PROTECT 5
 MOB CENTER OF GRAVITY Y-AXIS ACCELERATION
 FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



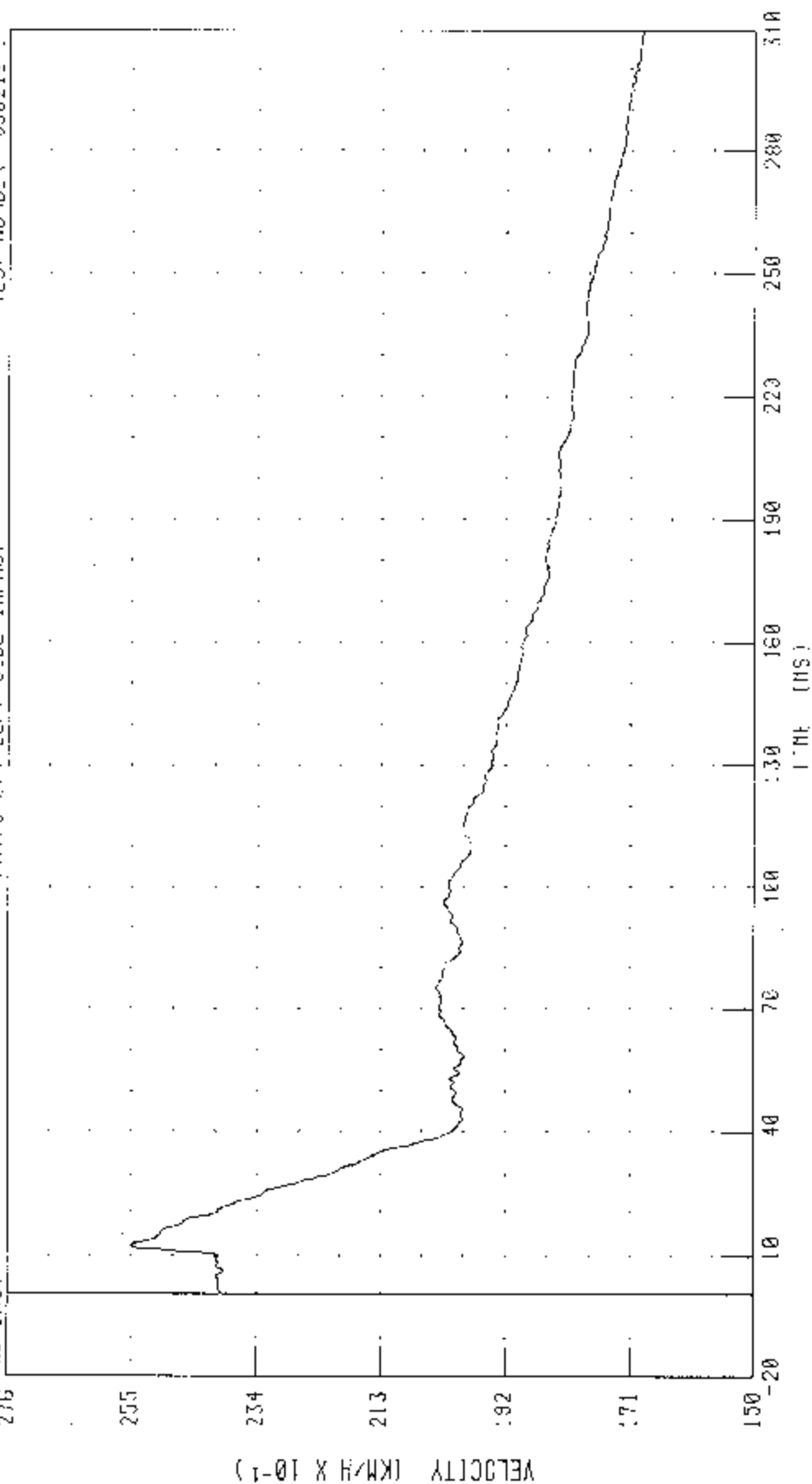
CHANNEL: BCCYG1 FILTER: CH CLASS 80

PEAK DATA 9 73 6 @ 11 12 MS; -7.41 G @ 35.48 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING IMPERMEABLE BARRIER) INTO LEFT SIDE OF 2000 04200 PROTEGE 5

MOV CENTER OF GRAVITY Y-AXIS VELOCITY

RC INC. FVCS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



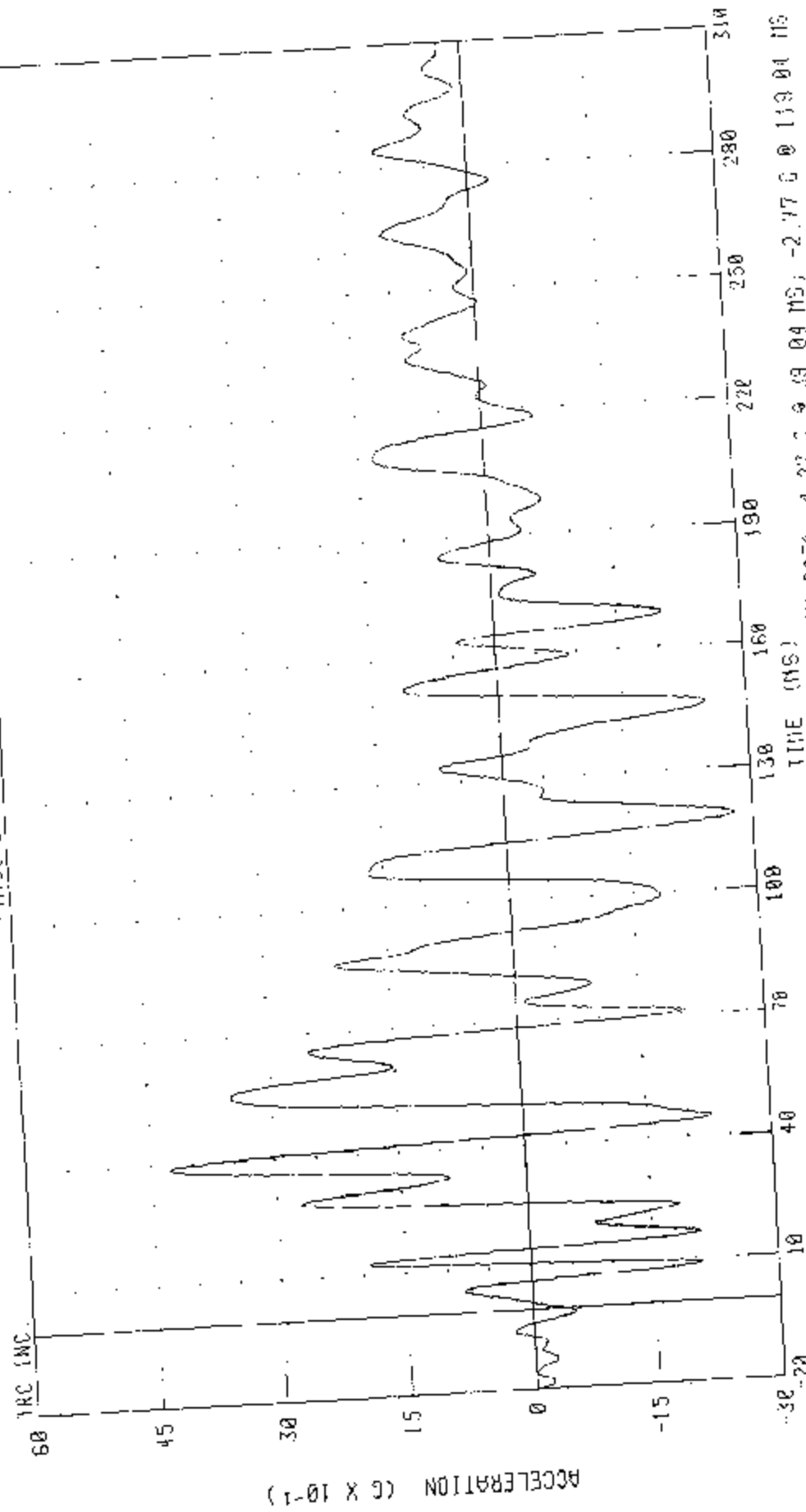
CHANNEL: DCCYV1 FILTER: CH CLASS: 30 TIME (MS): 16.87 KM/H @ 310.00 °S

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SLUE OF 2003 MAZDA PRO-ECG 5

TEST NUMBER: 030212-1

MOB CENTER OF GRAVITY Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT



PEAK DATA 4 27 3 9 49 04 MS; -2.77 G @ 113 04 MS

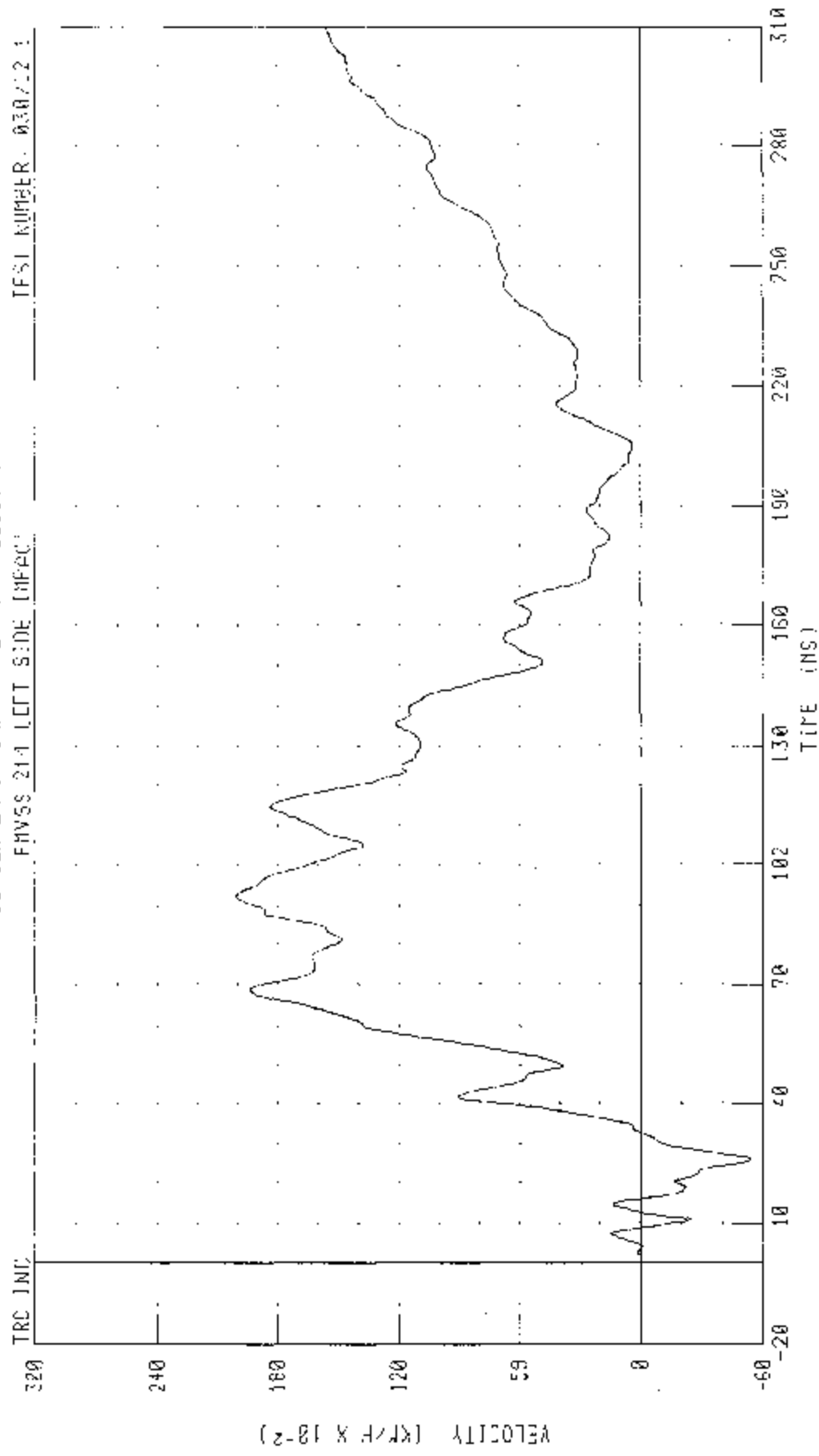
CHANNEL: BCCZG1 FILTER: CH CLASS 00

030212-1

B-112

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 WAZDA PROJECT 5.

100 CENTER OF GRAVITY Z-AXIS VELOCITY



PEAK DATA 2 01 KPH/11 @ 92 72 MS, -0 54 KPH/11 @ 25 94 MS

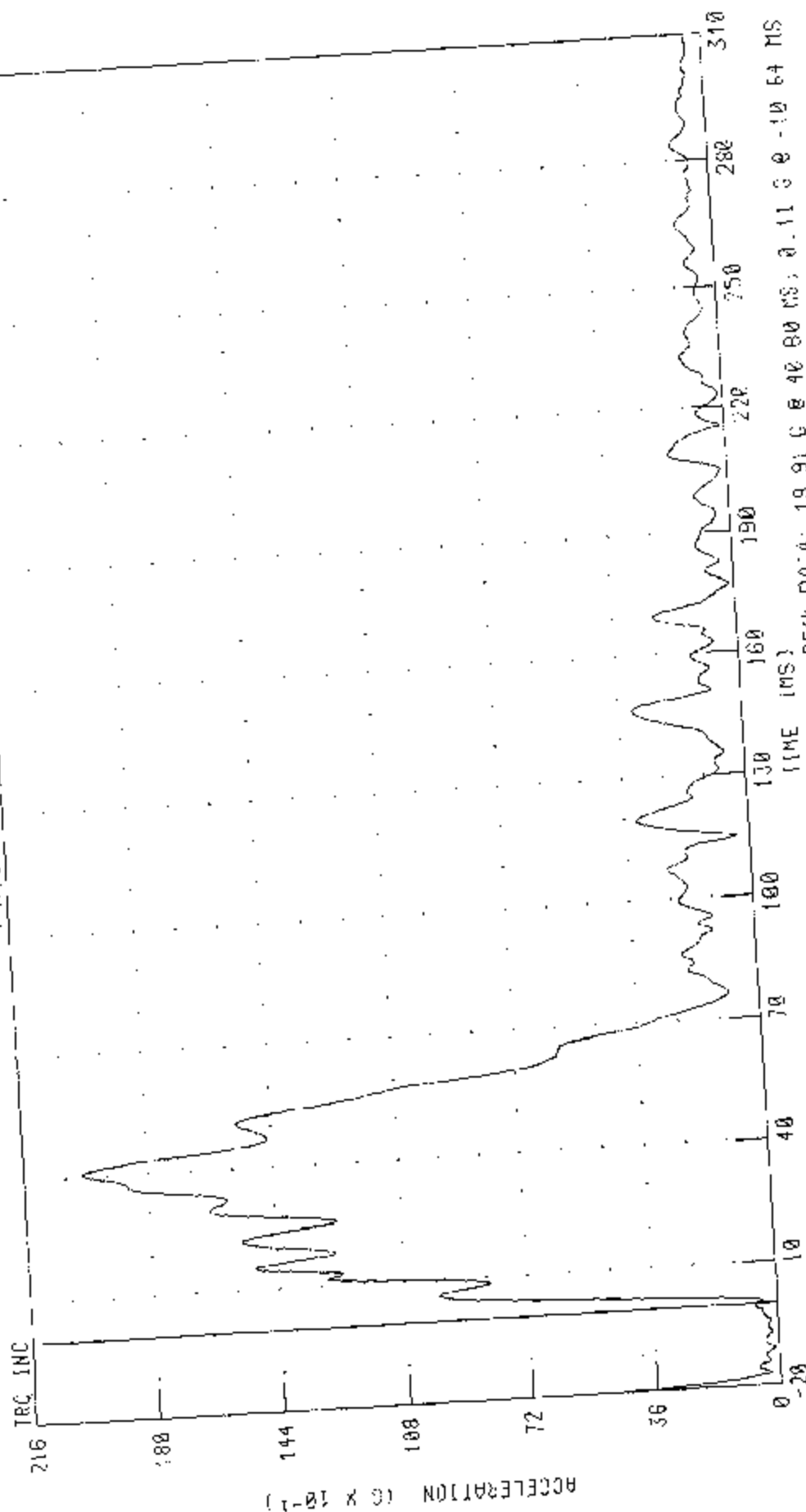
CHANNEL: BCSZV1 FELIER: CAL CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2403 DAZLA PROTEGE S

MOB CENTER OF GRAVITY RESULIAN' ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



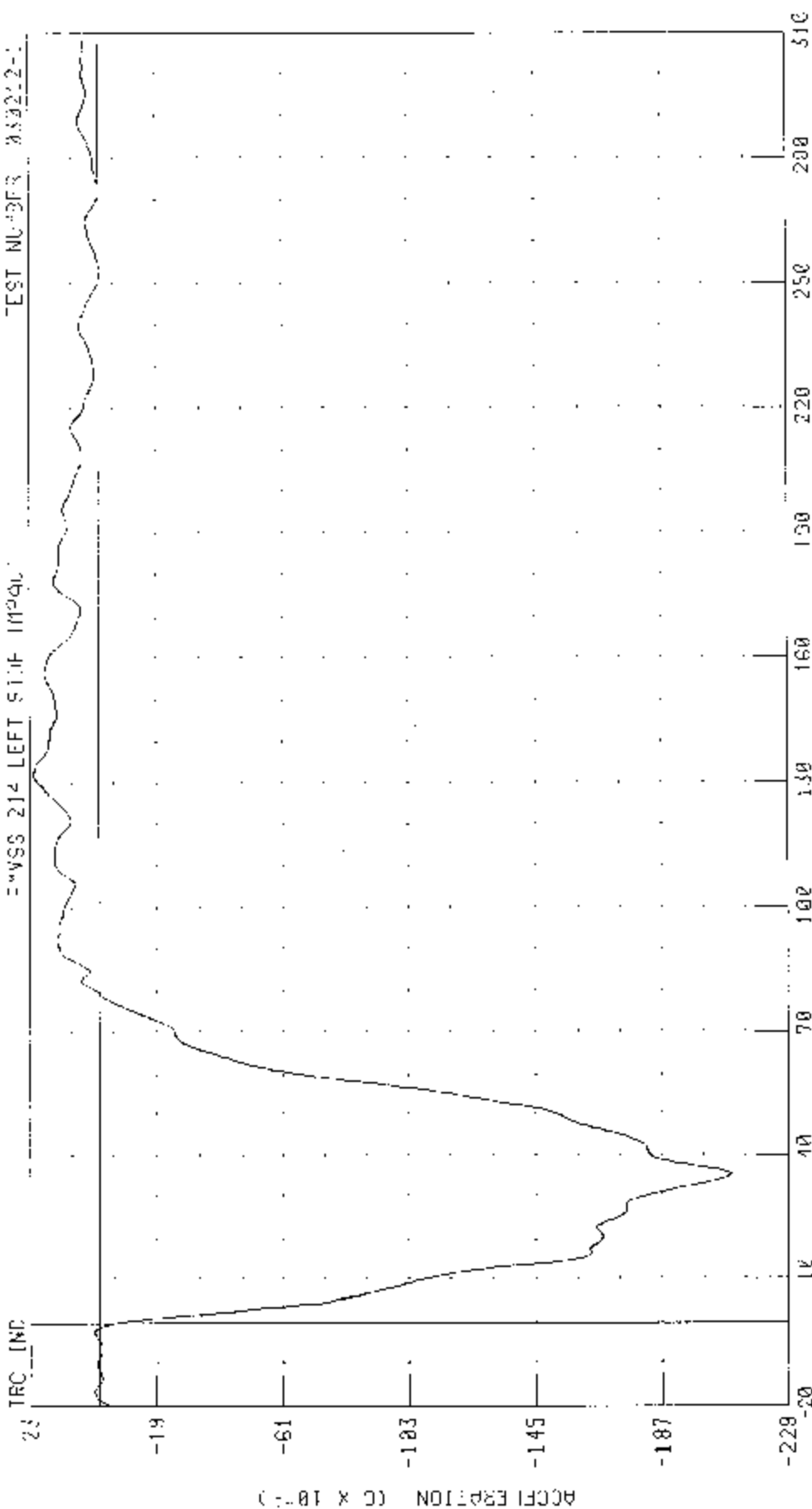
CHANNEL: BCCRG1 FILTER: CH C/SS 60

48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 2003 HP70A PROJECTILE 5

100 LEFT REAR X-AXIS ACCELERATION

TEST NUMBER 030212-1

TRC INC



TIME (MS)

PEAK DATA: 218.6 @ 132.24 MS, -21.81 G @ 35.28 MS

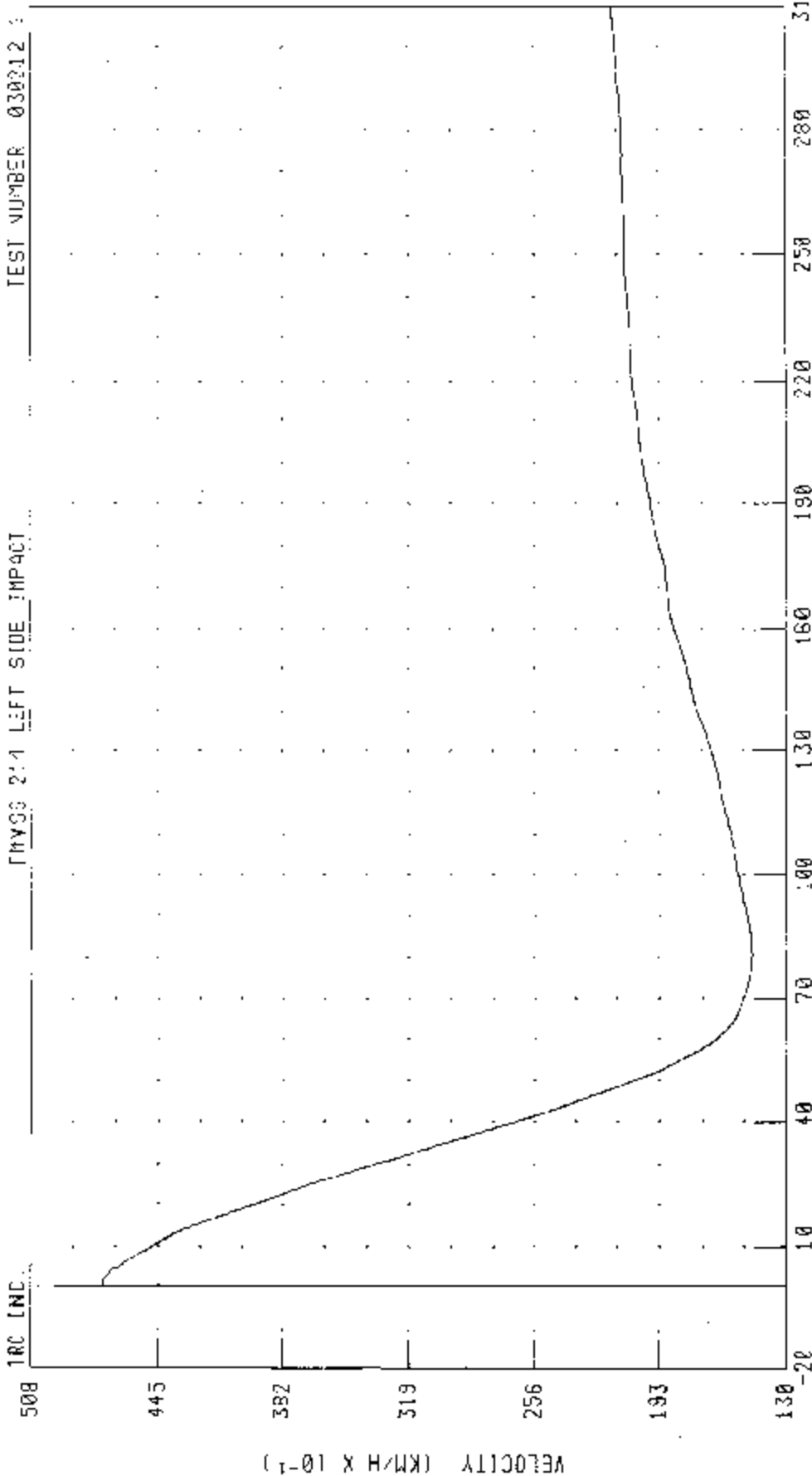
CHANNEL: LRRXG1 FILTER CH CLASS 50

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

M08 LEFT REAR X AXIS VELOCITY

TEST NUMBER 030212-1

TRC (INC)



TIME (MS)

PEAK DATA: 47.20 KN/H @ 1.04 MS; 14.65 KPH @ 01.04 MS

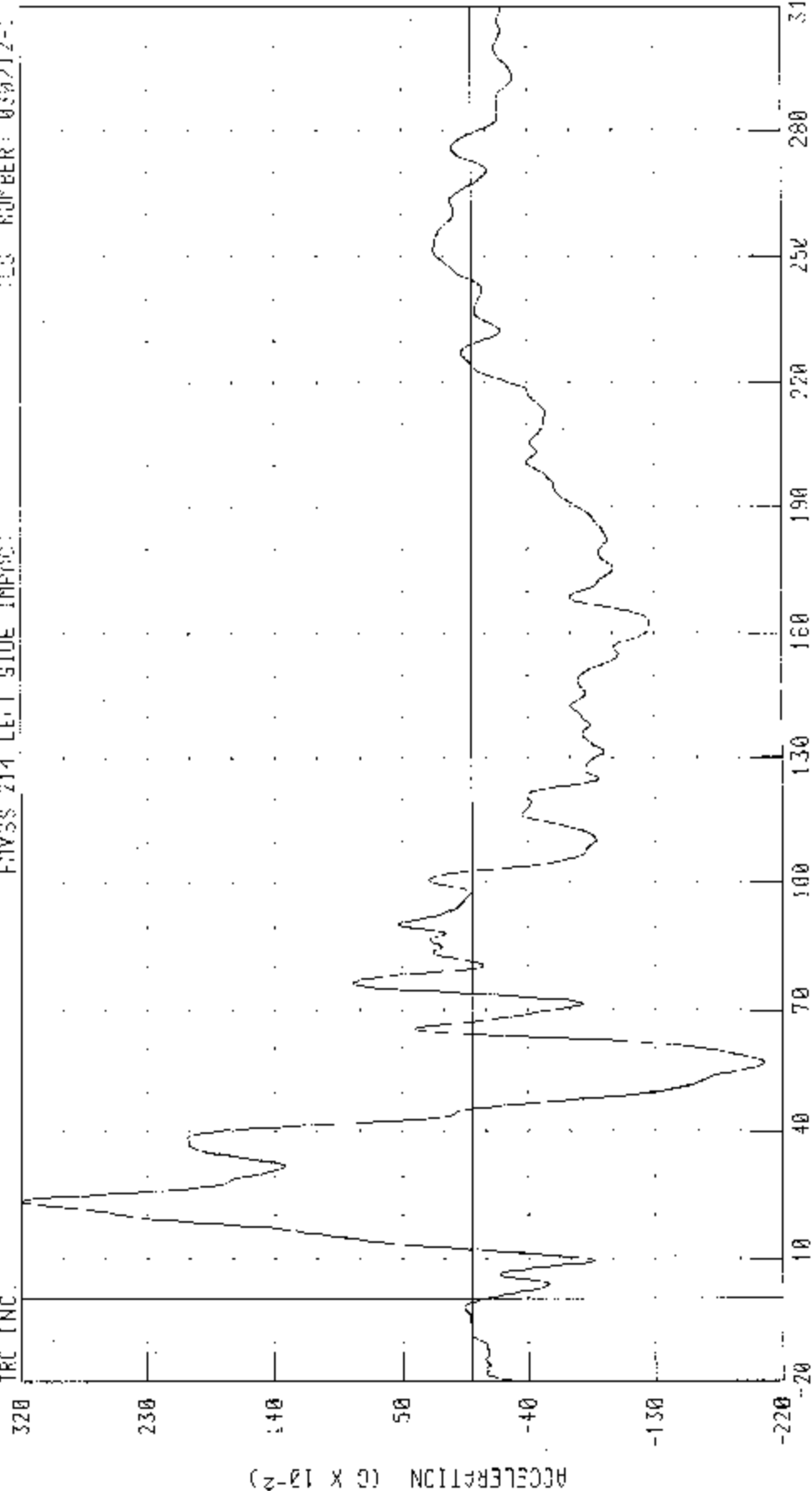
CHANNEL: LRRXV1 FILTER: CH CLASS 1B2

13/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZDA PROTOTYPE S

NO8 LEFT REAR Y AXIS ACCELERATION

TEST NUMBER: 030212-1

TRC INC.



CHANNEL: 1 (RYG) FILIK: CH. CLASS 60

PEAK DATA: 5 19 0 23.58 MS. -7 97 0 0 56 24 13

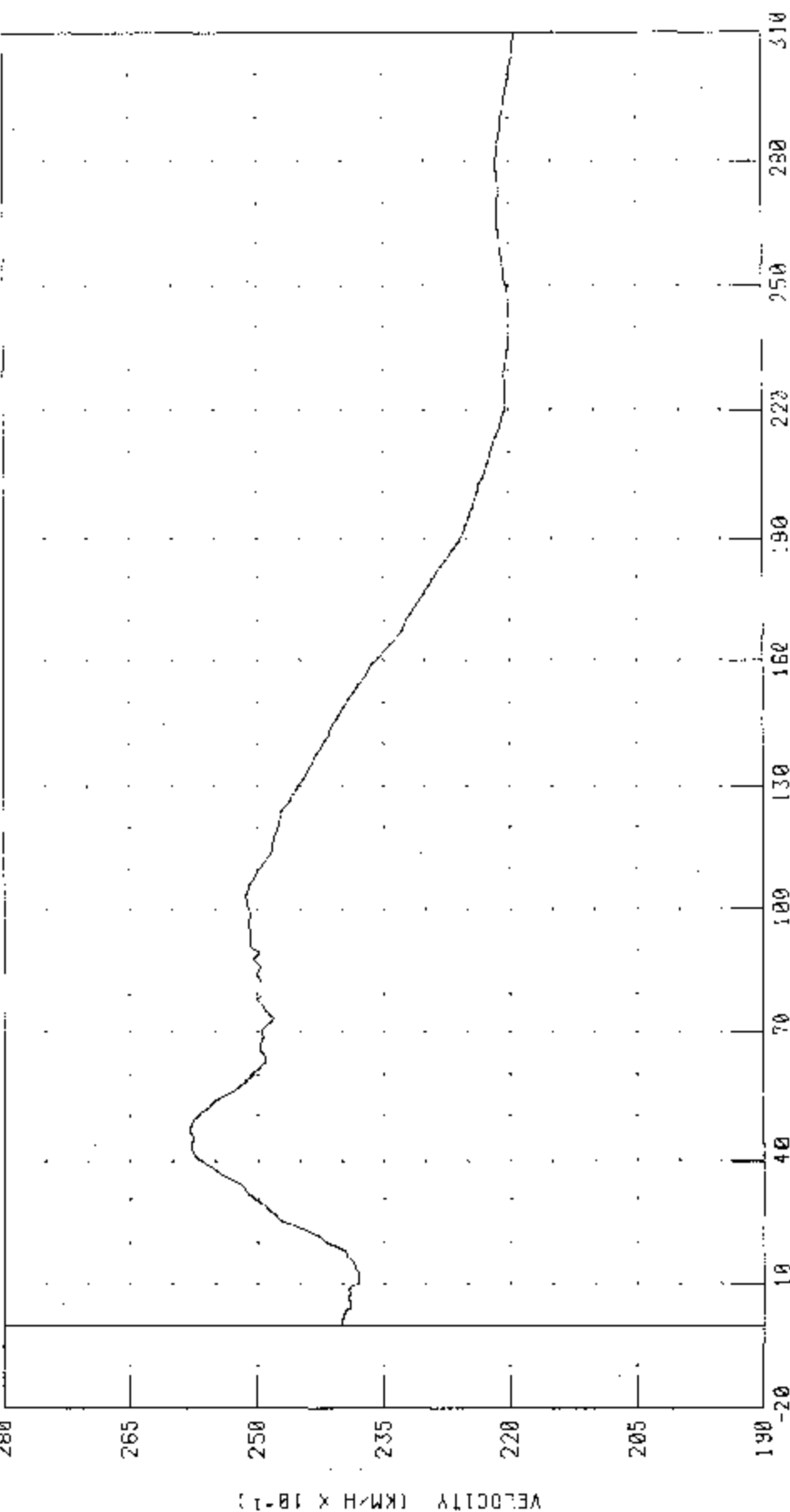
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2023 NORTH BRIDGE 5

100 LEFT REAR Y-AXIS VELOCITY

TRC INC.

PHASE 2/4 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TIME (MS)

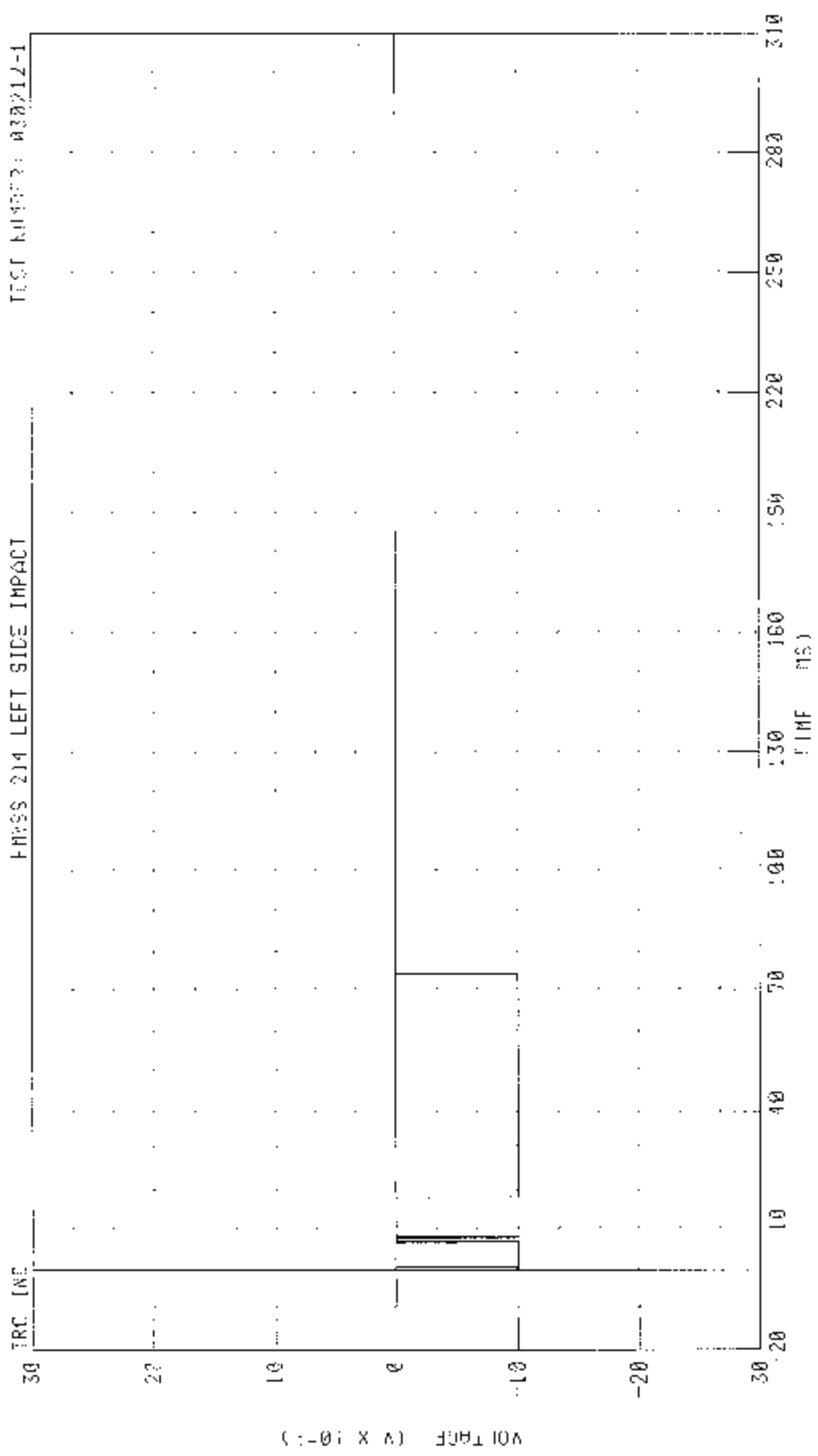
CHANNEL LRRYV1 FILTER: CH. CLASS 130 FLAK DATA: 25.80 KM/H @ 46.50 MS, 21.92 KM/H @ 310.00 MS

48/24 KP- 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2203 MATHA PROTEGE 5

M03 RIGHT SIDE CONTACT SWITCH

PHASE 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: M03R1 FILTER: CH CLASS 1000

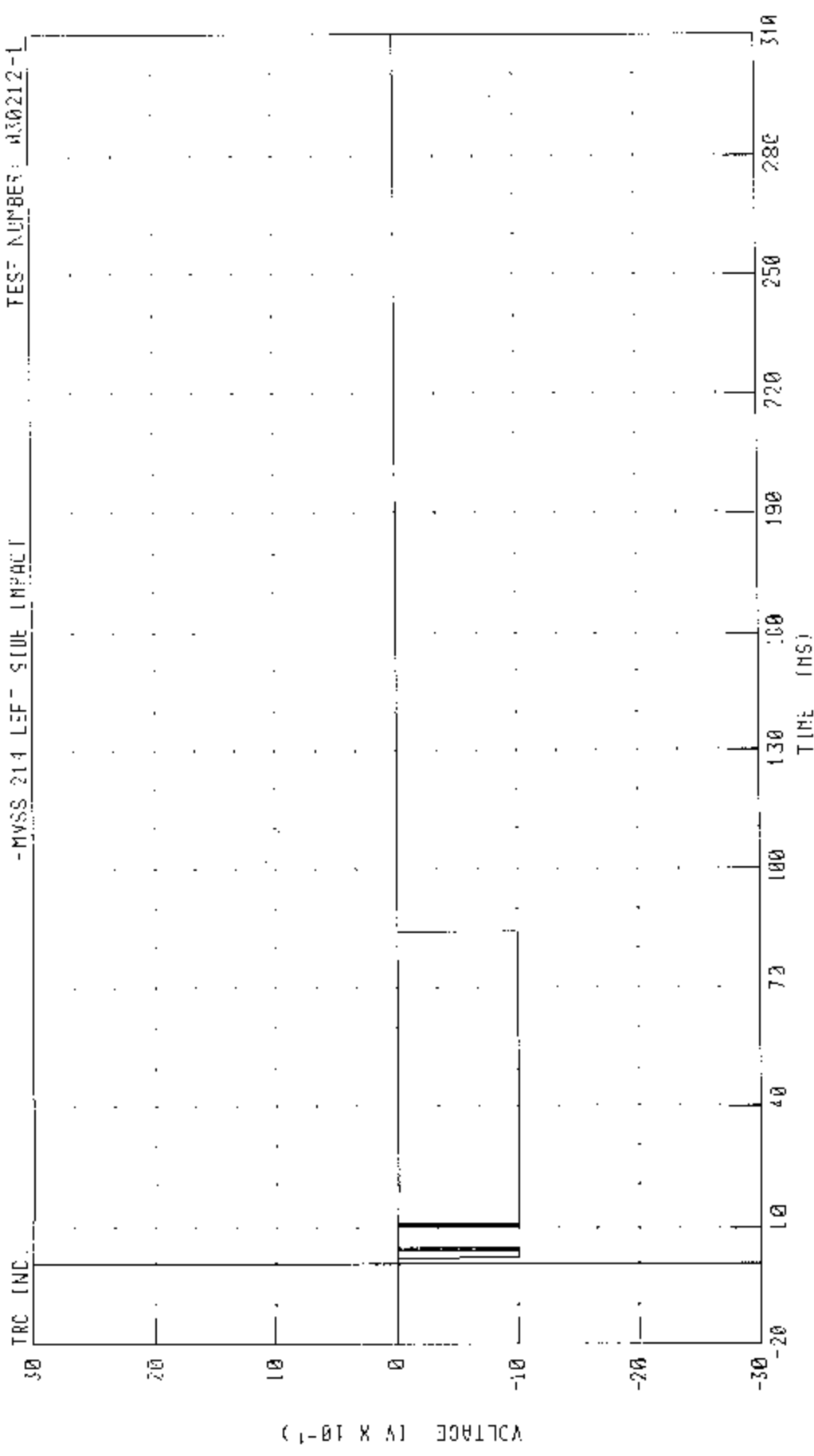
PHASE DATA 0 00 V 0 310 00 MS, 1.00 V 0 0.00 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 Y470F PROJECT 5

MOB LEFT SIDE CONTACT SWITCH

TEST NUMBER: M30212-1

-MYSS 214 LEFT SIDE IMPACT



CHANNEL: MOB-L1 FILTER: CH CLASS 1000

PEAK DATA: 0.00 V @ 310.00 MS, -1.03 V @ 1.44 MS

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFURNABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER UPPER RIB Y AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.

52

40

28

16

1

-8

-20

ACCELERATION (G)

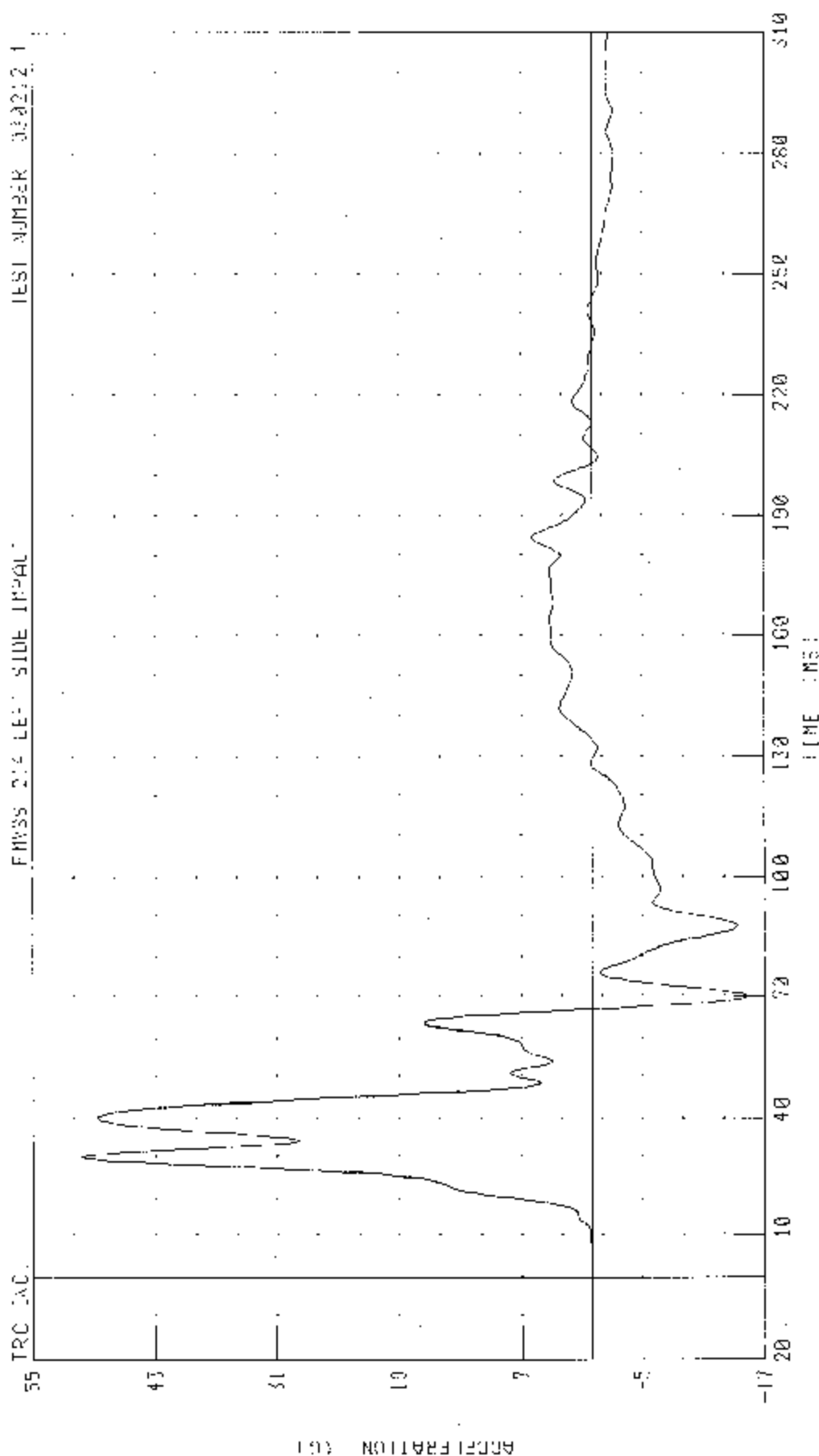
TIME (MS)

310 200 250 220 190 150 130 100 70 40 10

PEAK DATA 51.91 3 0 35 63 13, -18.24 0 0 69.33 15

CHANNEL: LURY01 FILTER: FIR 100

48/91 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF VEHICLE MAJOR DEFORMATION
 DRIVER LOWER RIB Y-AXIS ACCELERATION



CHANNEL 1 LAYERS: FILTER 1R 130

PPK DATA: 50 25 0 0 30 00 MS. 35.47 G 0 70 00 MS

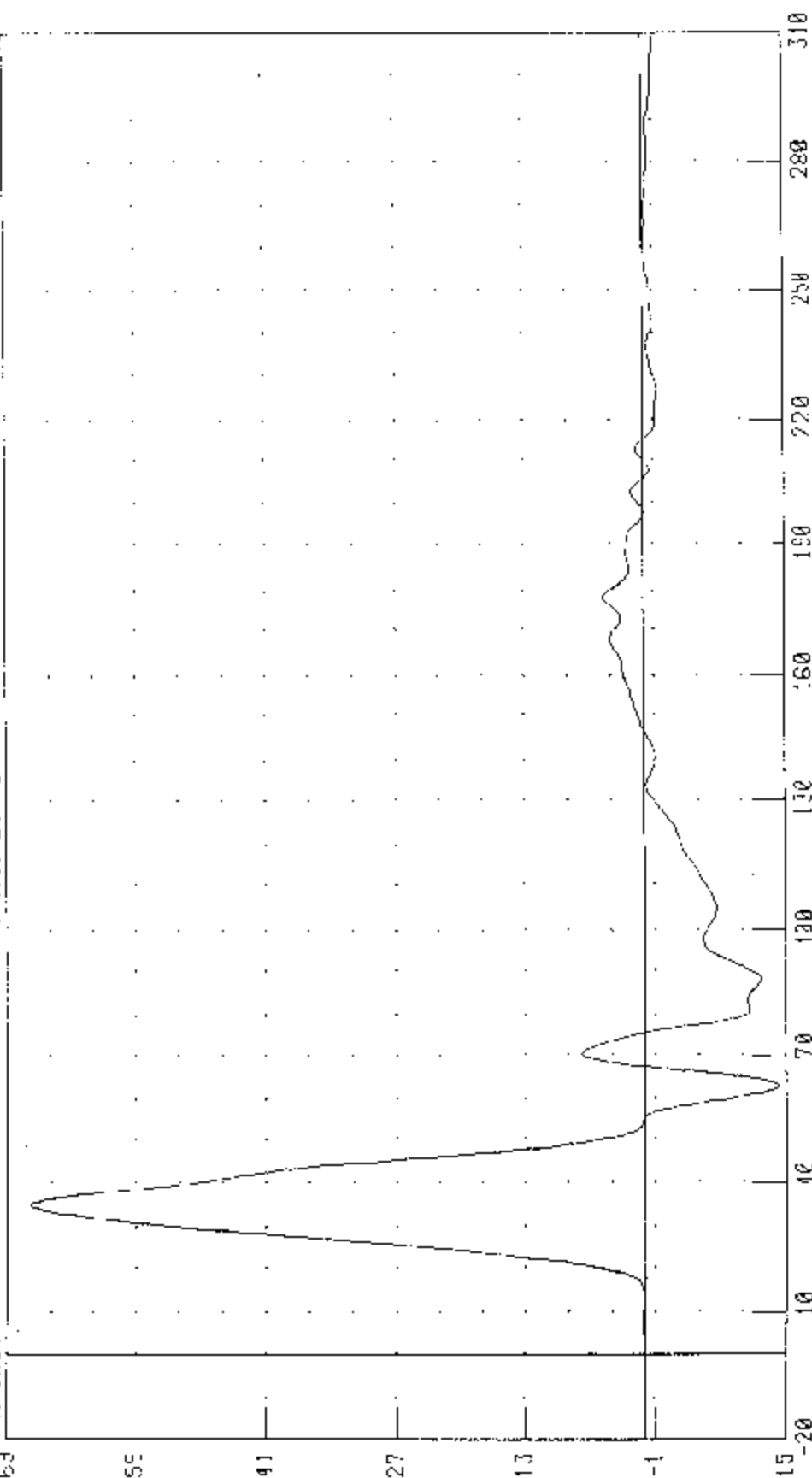
48/24 KPH 93 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER LOWER SPINE Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



TIME (MS)

CHANNEL: T12YC1 FILTER: FIR 100

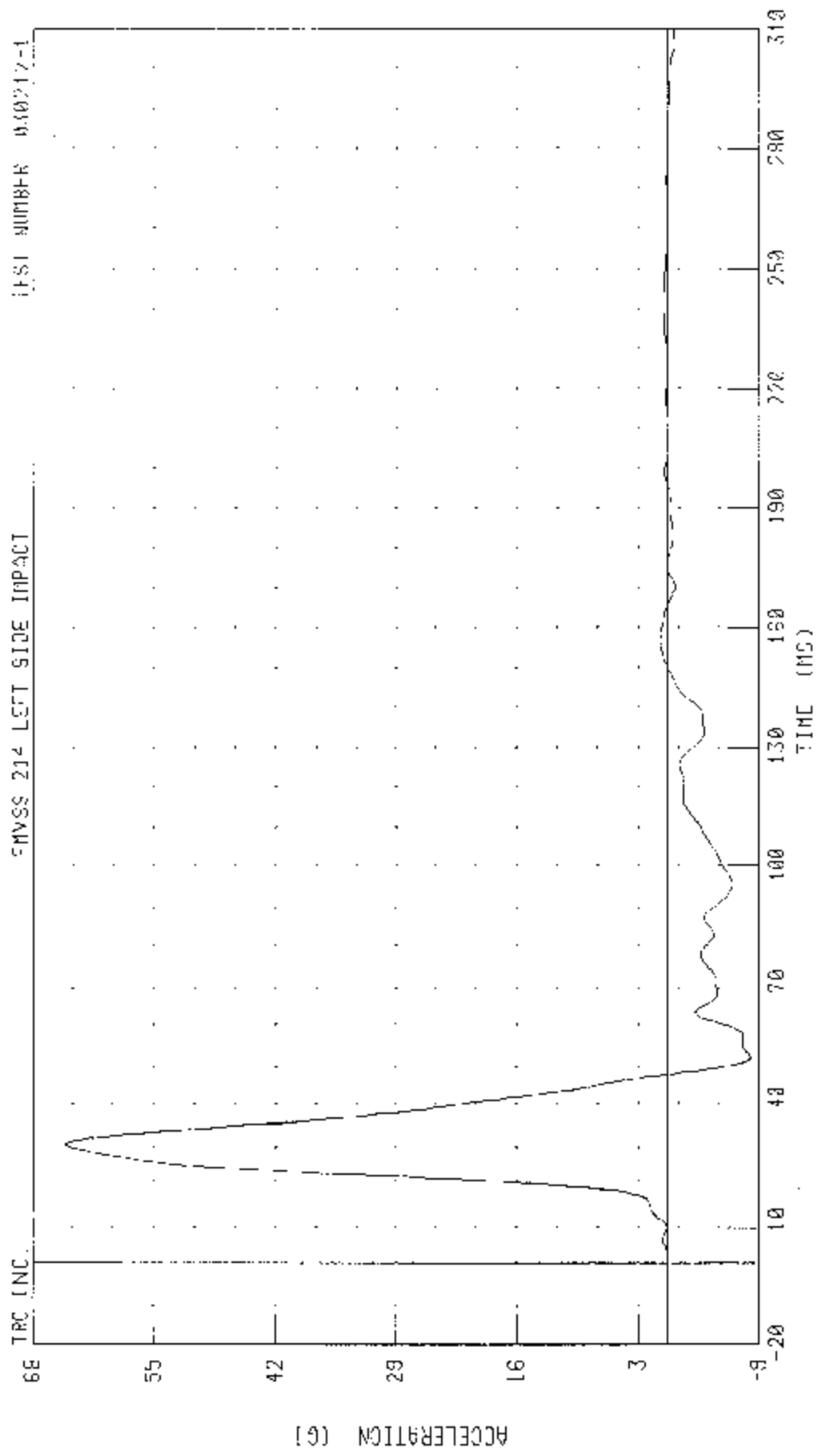
PEAK DATA 65.54 G @ 35.00 MS, -14.20 G @ 63.13 MS

48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HONDA PROTEGE 5

DRIVER PEV1'S Y-AXIS ACCELERATION

CHVSS 214 LEFT SIDE IMPACT

TEST NUMBER 010212-1



CHANNEL PEV1C1 FILTER FIR 100

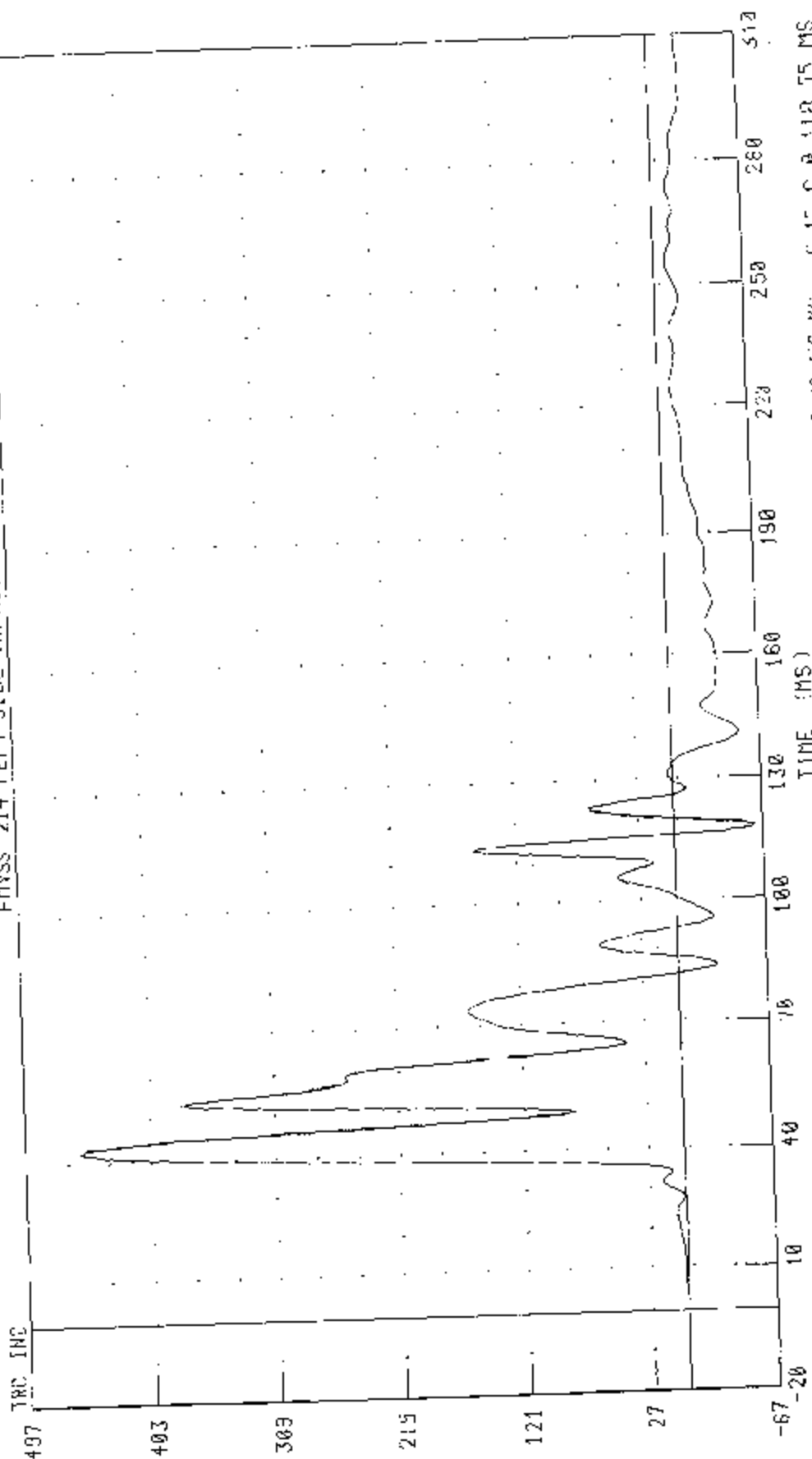
PEAK DATA: 64.45 @ 31.25 MS. 0.05 3 9 52 50 MS

48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NADDA PROTEGE 5

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



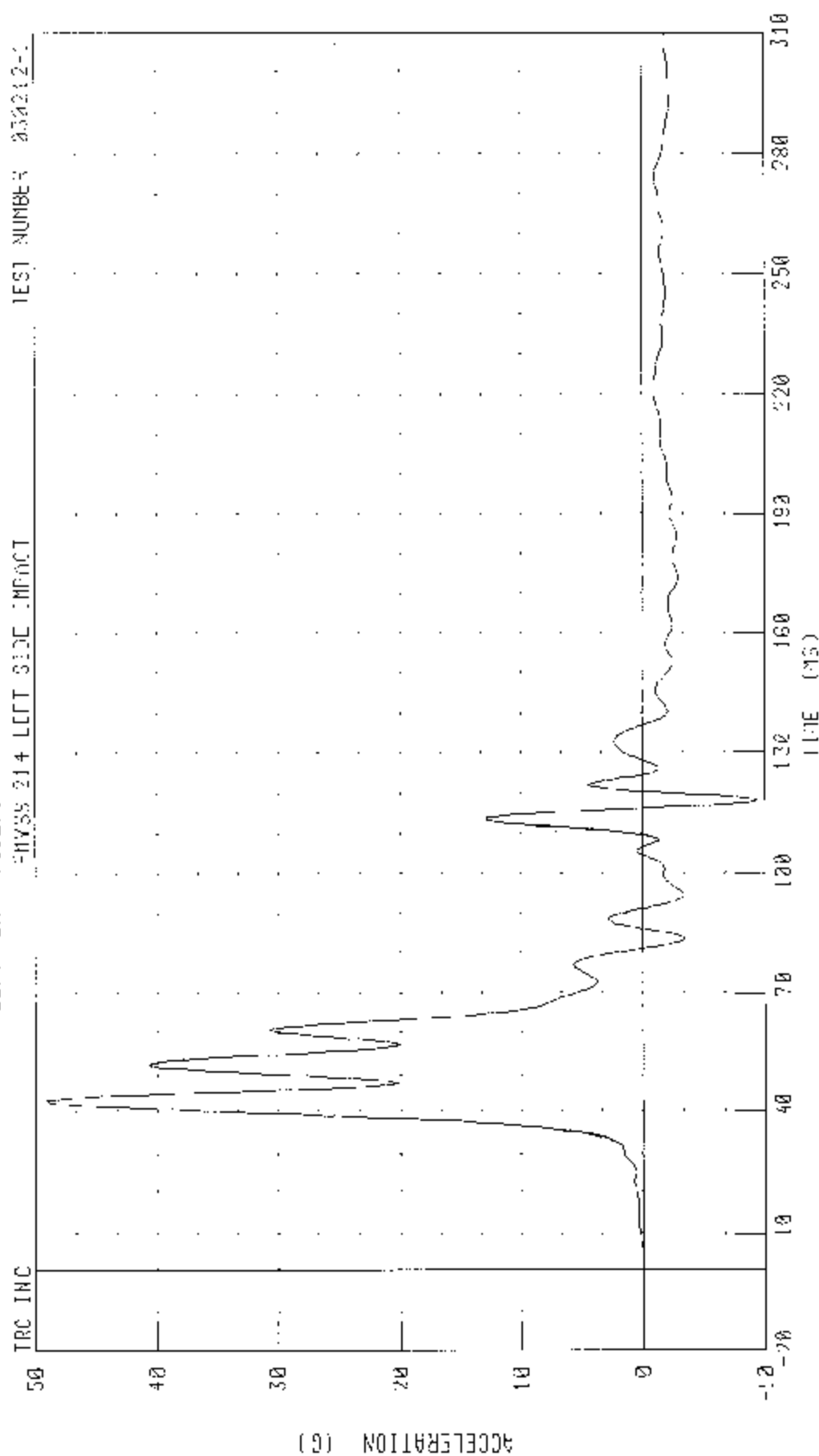
PEAK DATA 45.58 G @ 42.50 MS, -6.16 G @ 110.75 MS

CHANNEL: CURV04 FILIER: FTR100

ACCELERATION (G X 10^-1)

48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROCEDE S

LEFT REAR PASSENGER LOWER RIS Y-AXIS ACCELERATION



CHANNEL : LLRYG4 FILTER : FTR 100

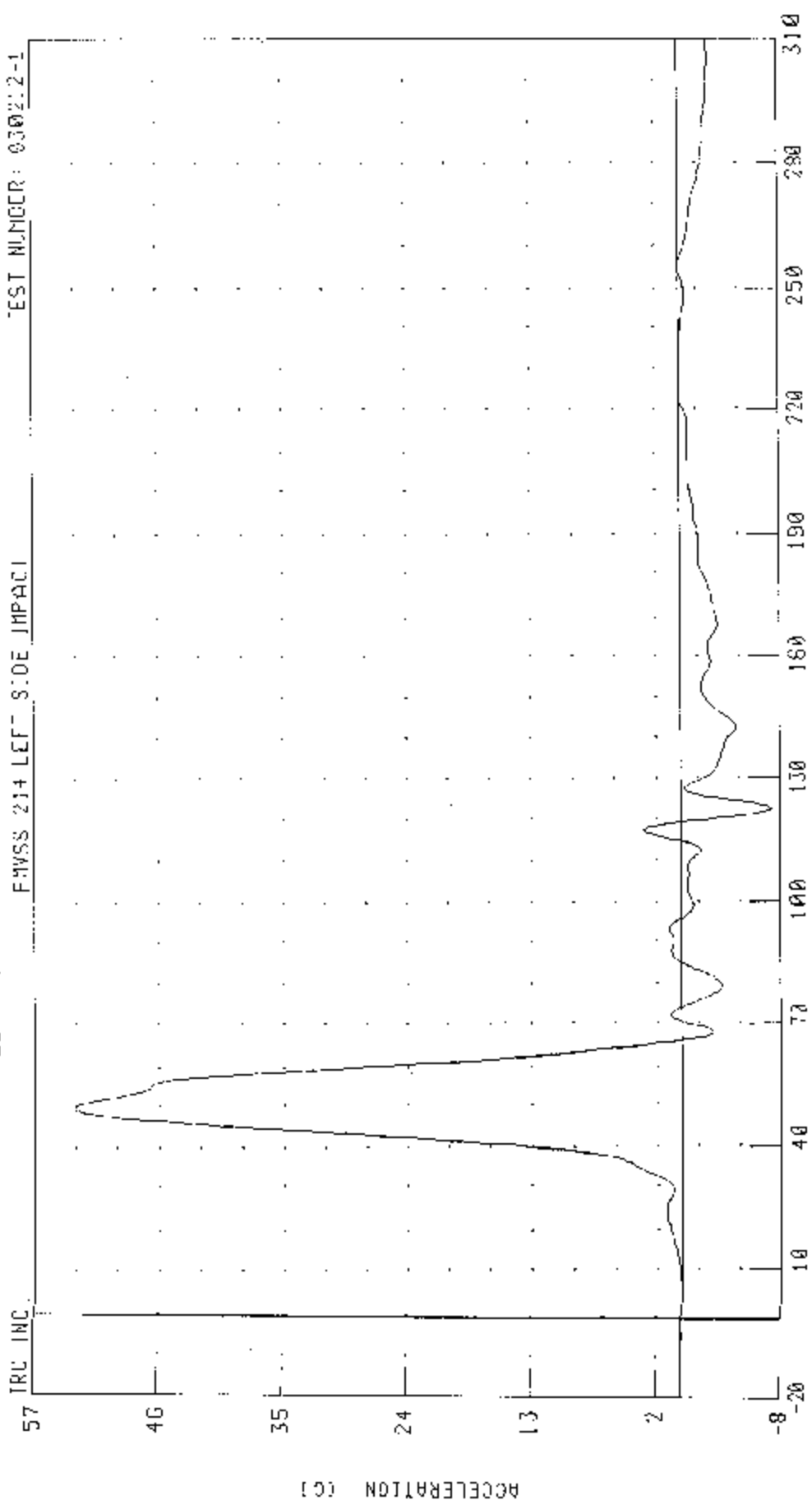
PEAK DATA: 49.00 G @ 43.13 MS; -9.42 G @ 110.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR PASSENGER LOWER SPIKE W-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT



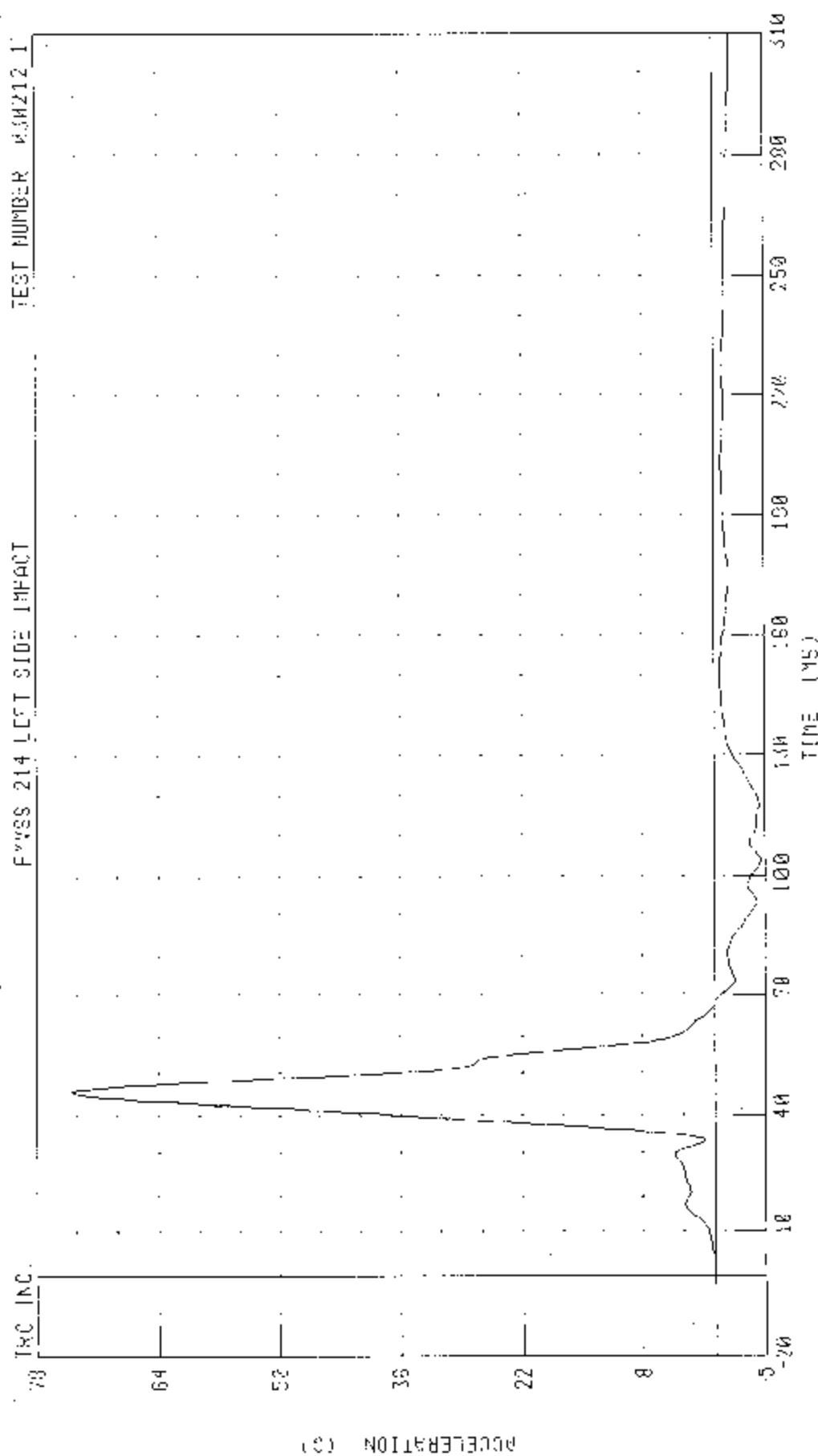
C-CHANNEL 12Y04 FILTER: FIR 100

PEAK DATA 53.72 G @ 49.37 MS; -8.83 G @ 122.50 MS

40/24 K=450 DEORFF SIDE IMPACT MOVING DEFORMABLE BARRIER: INTO LEFT SIDE OF 2003 MINZON PROFILE G

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FVSS 214 LEFT SIDE IMPACT TEST NUMBER K30212-1



CHANNEL PEY04 FILTER FIR 120

PEAK DATA: 74.03 99 43.62 MS; -5.74 100 103.13 MS

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

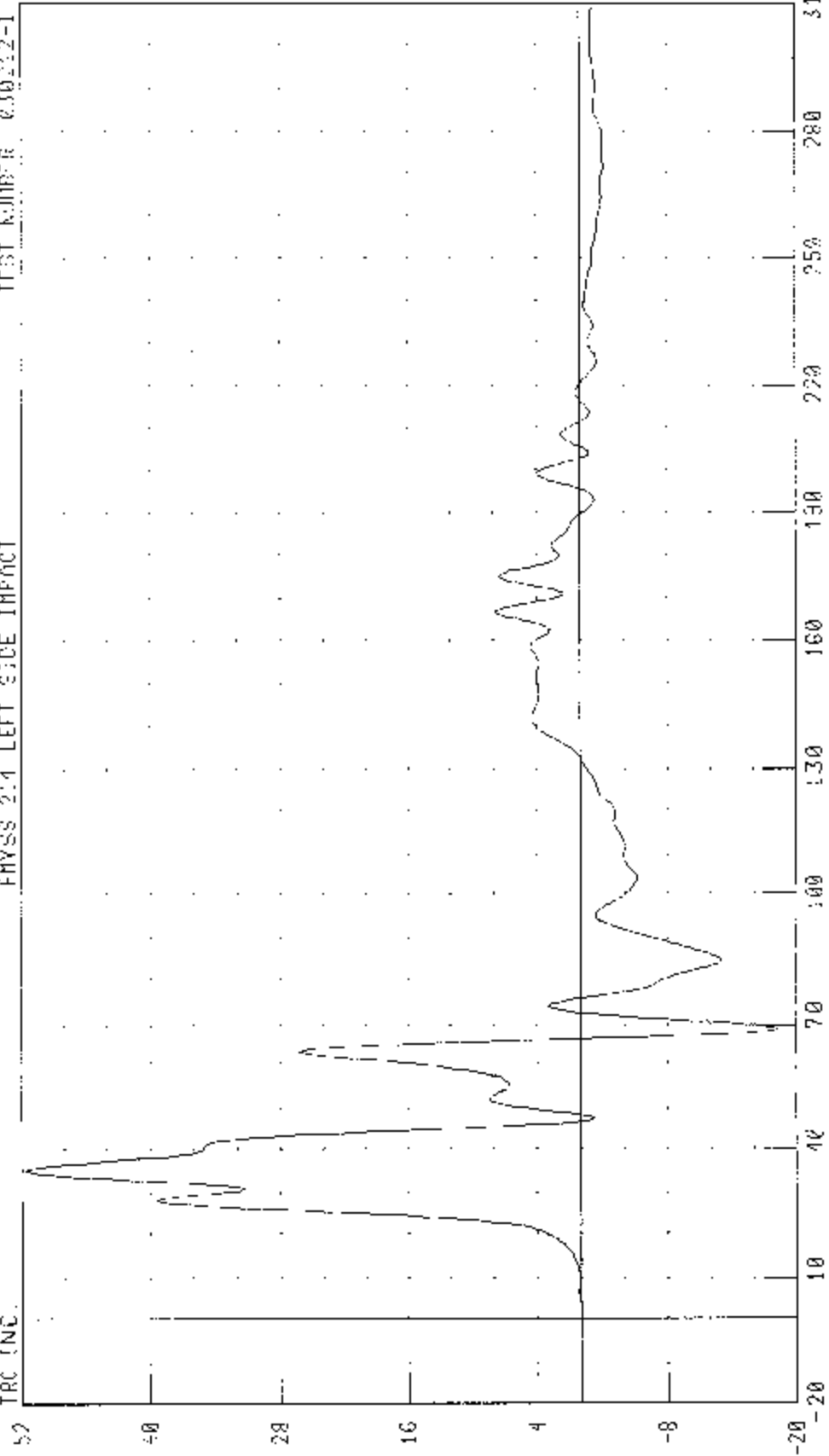
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2085 NHTSA PRETYPE 5

DRIVER UPPER RIB V-AXIS REDUNDANT ACCELERATION

TEST NUMBER 030212-1

PHYS 214 LEFT SIDE IMPACT

TRC (INC)



CHANNEL 1 (V1) FILTER: FIR 100

TIME (MS)

PEAK DATA 51.72 G 335.03 MS, 10.4 G 200.38 MS

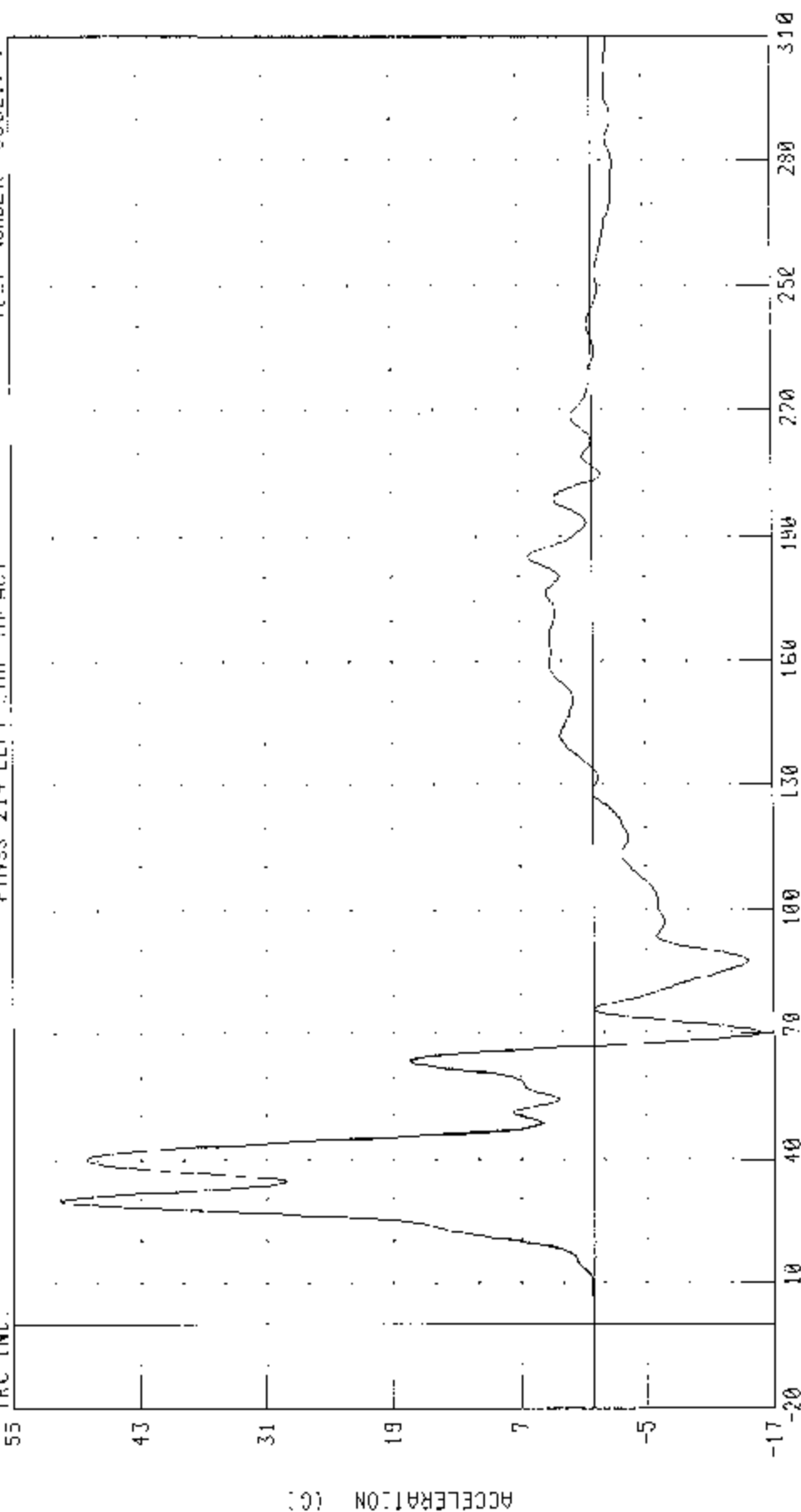
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 200.5 MA/DA PROTEGE 5

DRIVER LOWER REG Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



C-CHANNEL LRYR: FILTER: F1R 100

TIME (MS)

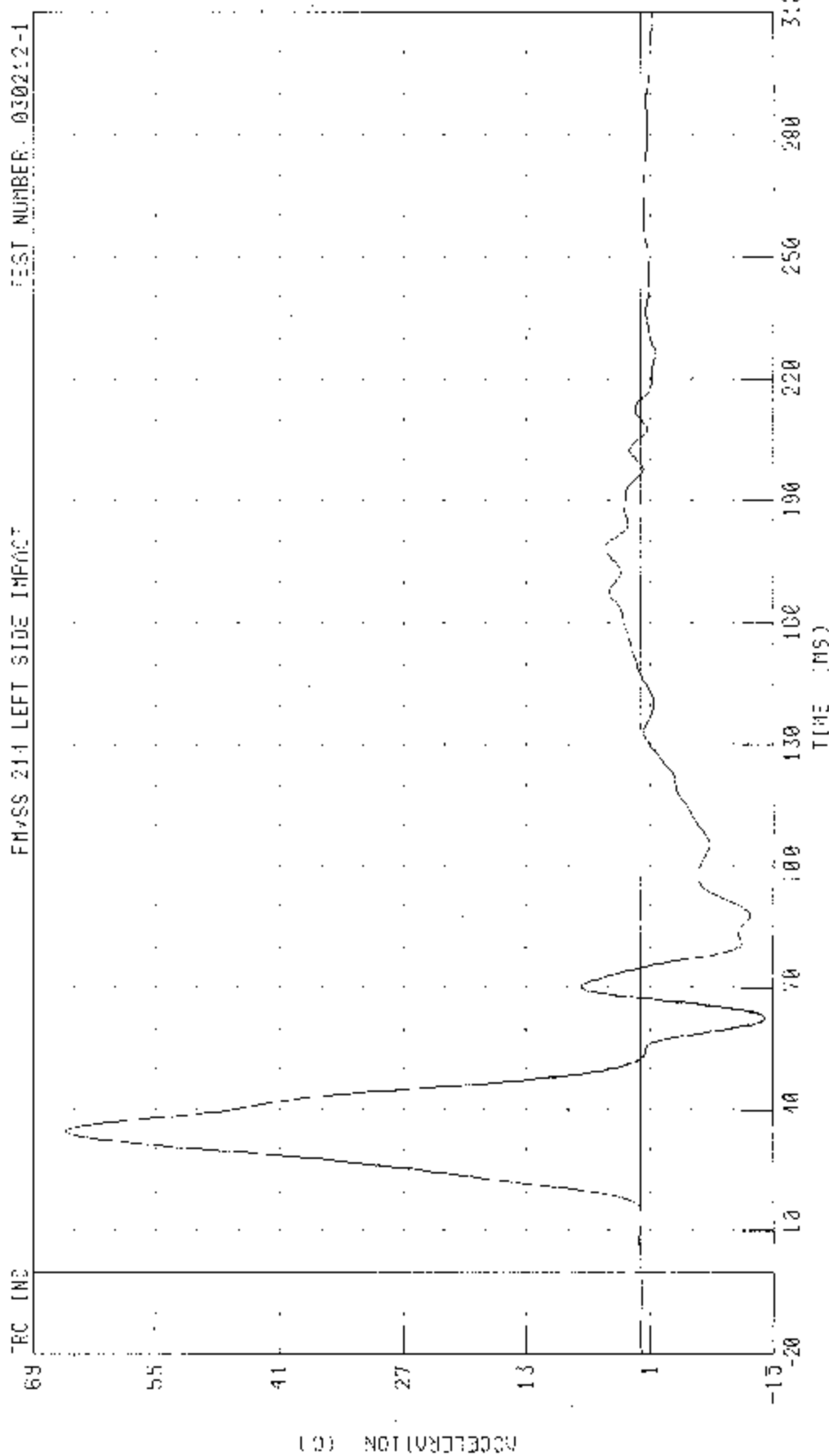
PEAK DATA 50.54 G @ 30.80 MS, -15.93 G @ 70.80 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 NADA PROTEGE 5

DRIVER W/HER SPINE Y-AXIS RECURRENT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL 112YB: FILTER: FIR 100

PEAK DATA: 60.20 G @ 34.38 MS, -14.00 G @ 63.13 MS

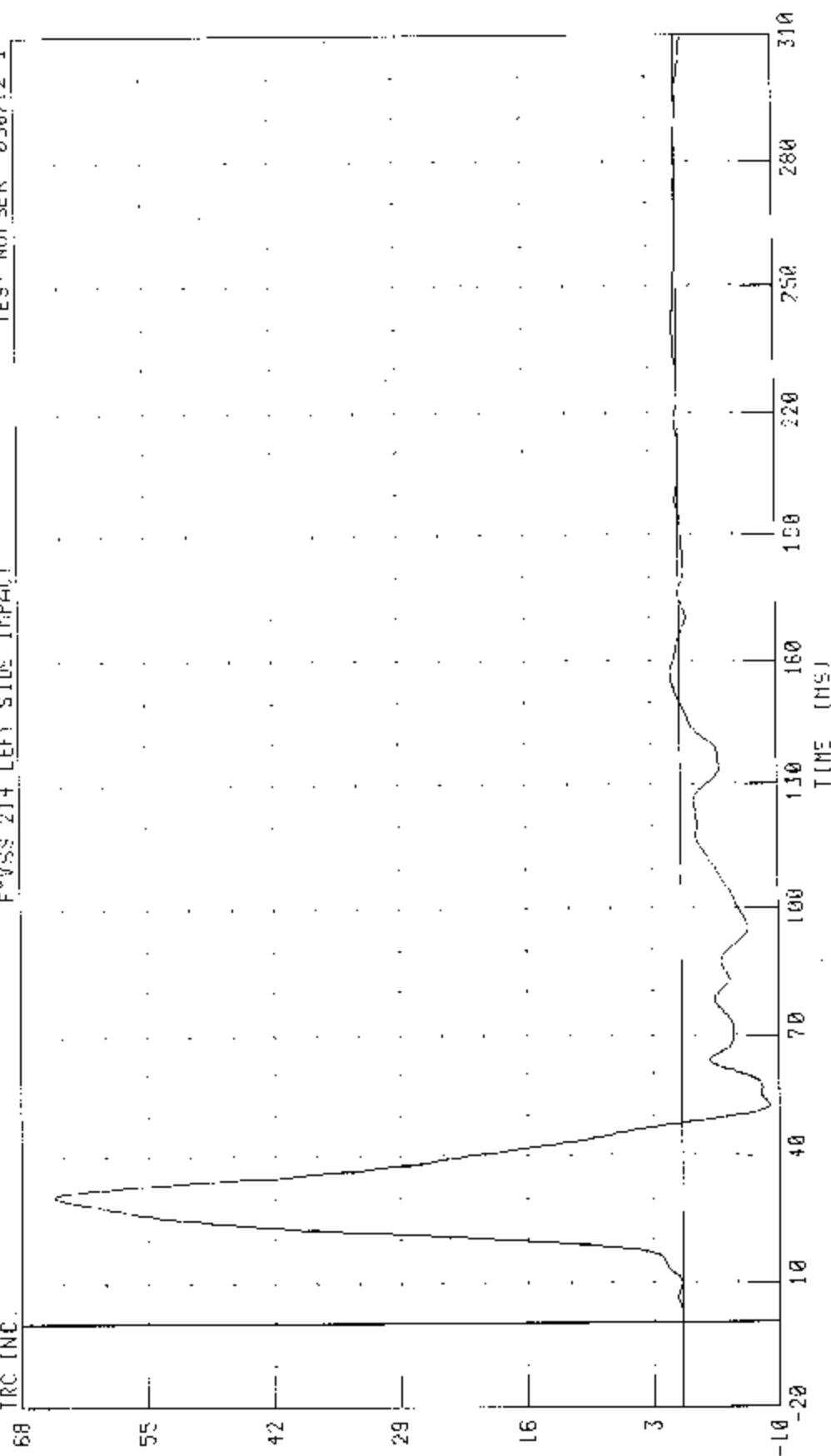
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER 030212-1

FVSS 214 LEFT SIDE IMPACT

TRC INC.



ACCELERATION (G)

TIME (MS)

CHANNEL PELVIR1 FILTER: FIR:00

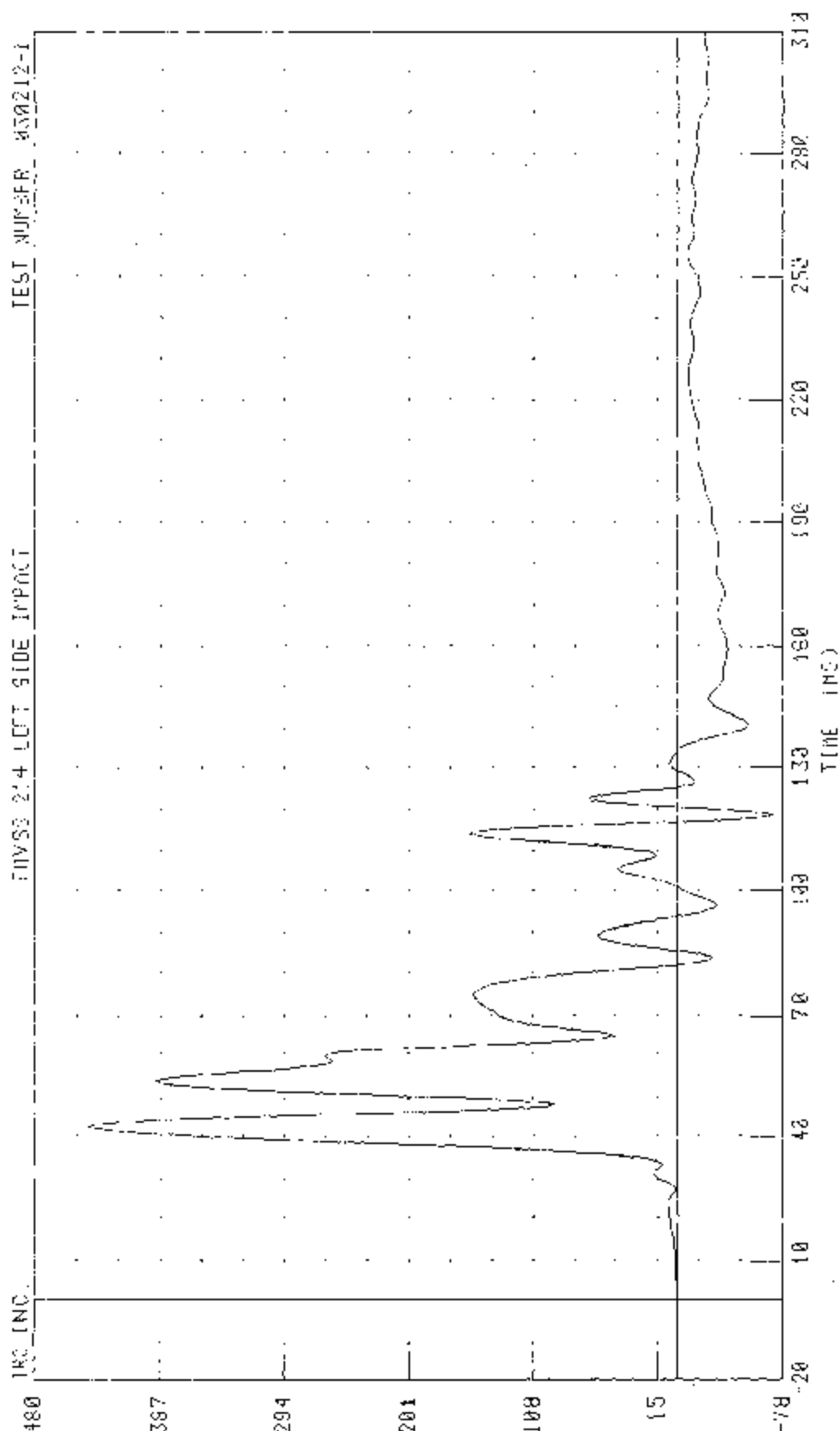
-LEAK DATA: 64 55 30 31 25 MS, -9.10 30 52 50 MS

48/24 KPA 90 DEGREE SIDE IMPACT (MOVING UNDEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NHTSA PROTEGE 5

LEFT REAR PASSENGER UPPER R18 Y-AXIS REBOUND ACCELERATION

TEST NUMBER: 30212-1

IMPACT 214 LEFT SIDE IMPACT



CHANNEL: LORVX4 FILTER: 113 100

PEAK DATA: 44 97 0 0 42 50 MS

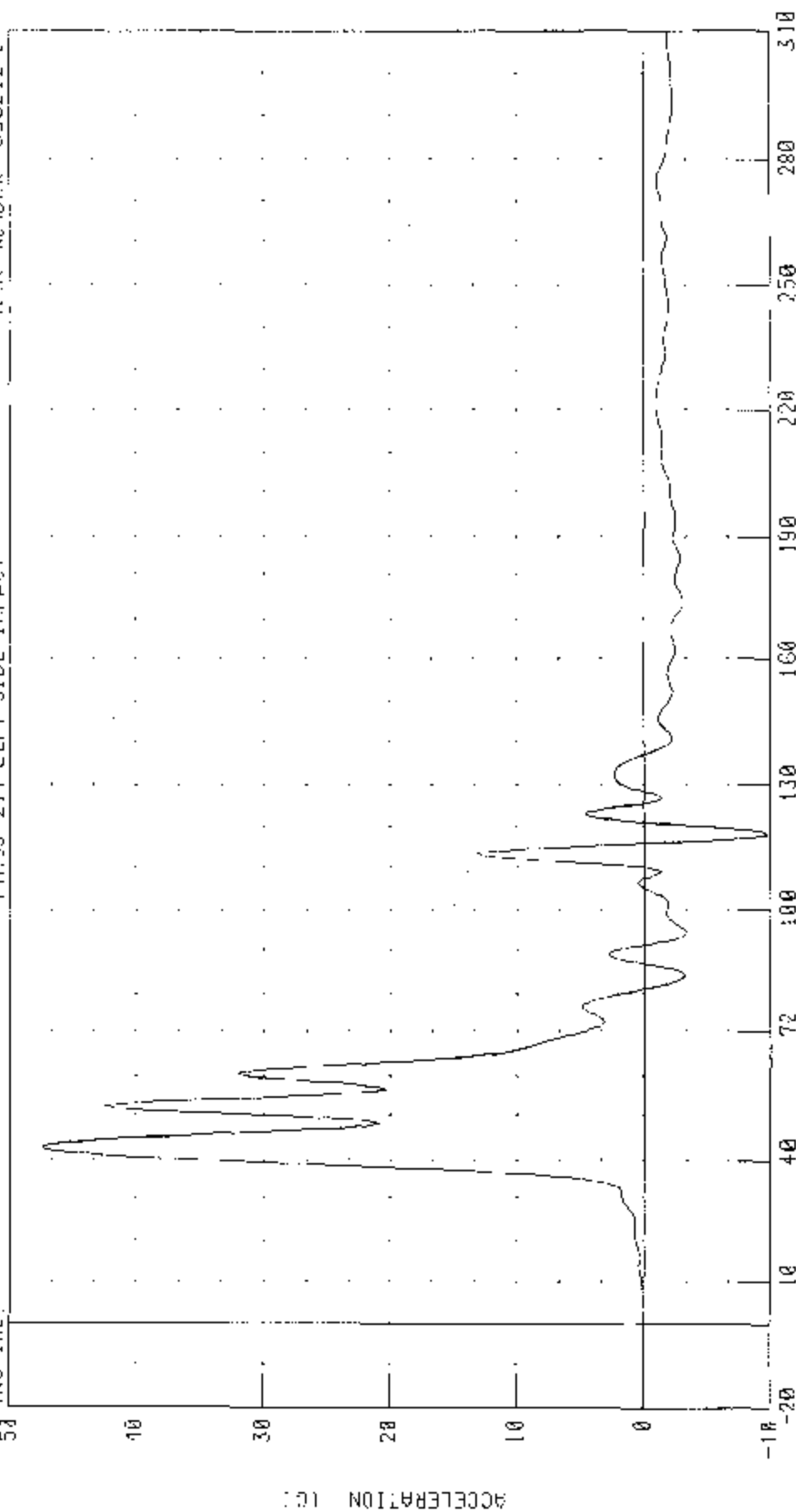
48/24 KPH 90 OFFSIDE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 1987 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

54 IRC INC.

FMSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: LLRYR2 FILTER: FIR 100

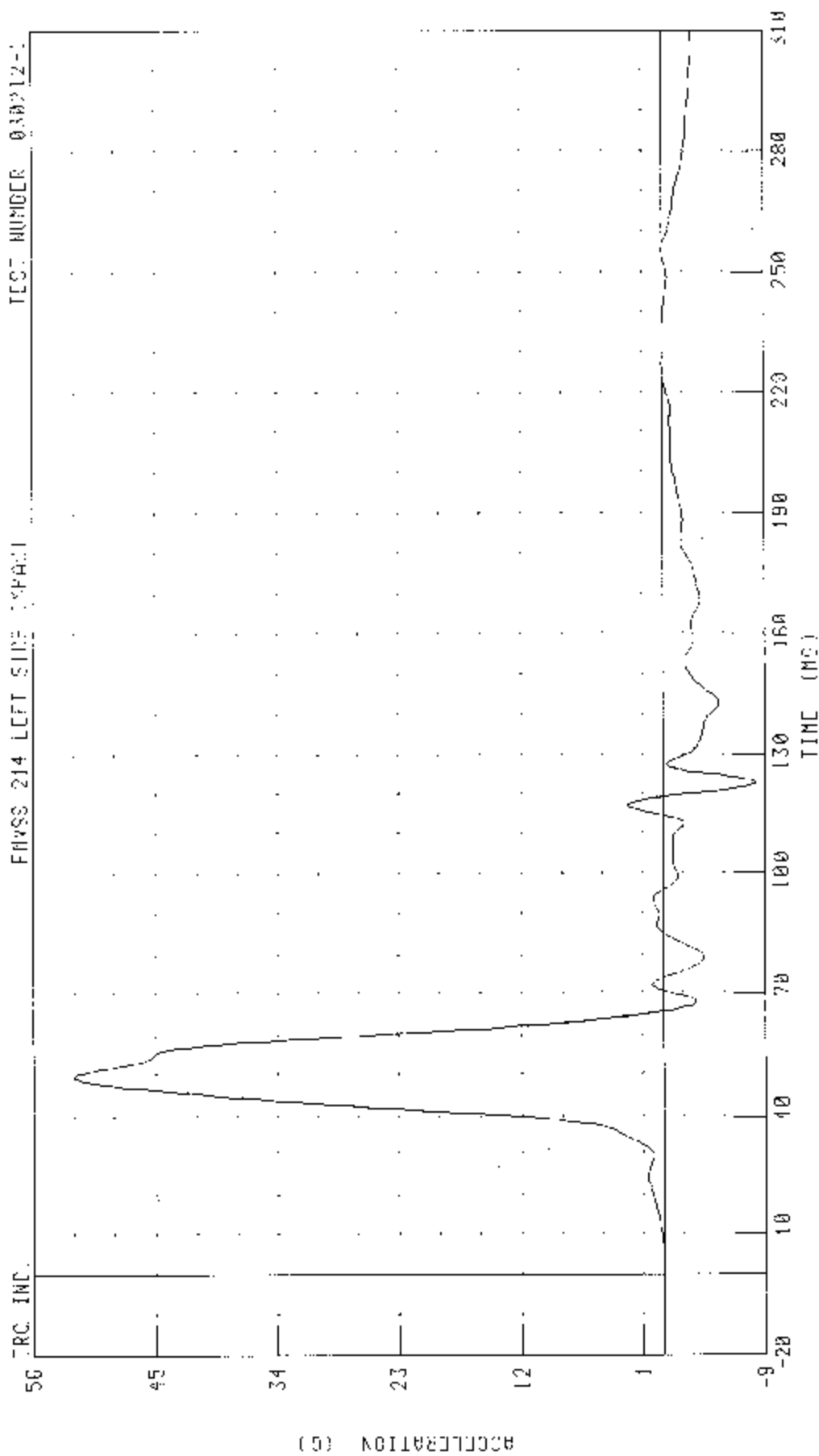
PEAK DATA 27.42 G @ 43.13 MS, -9.75 G @ 118.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT: IMPVING DEFORMABLE BARRIER) INTO LEFT SID- OF 2001 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

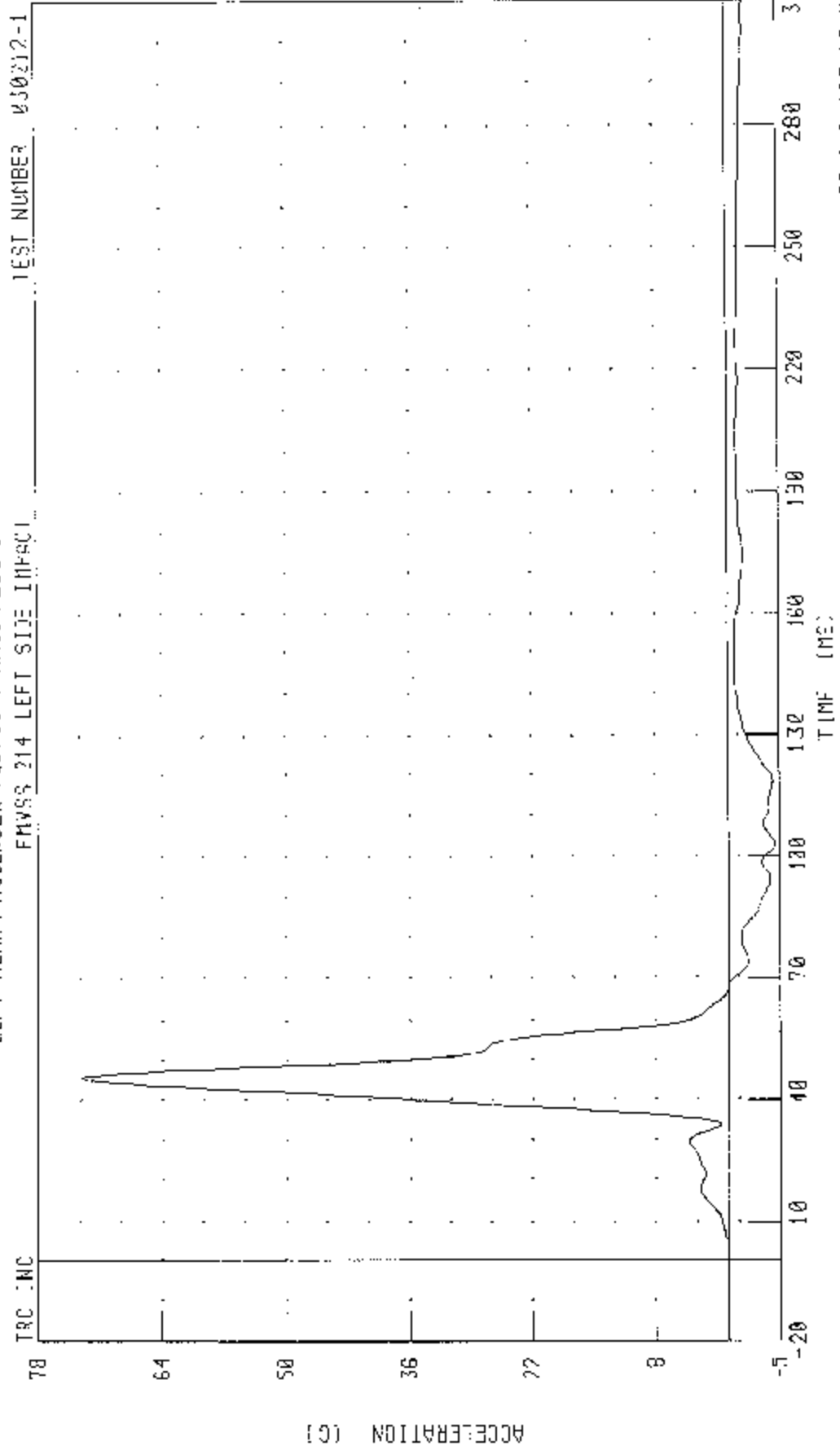
TEST NUMBER 030212-1



CHANNEL: T12YR4 FILTER: 1/3 100

PEAK DET: 53.72 G @ 49.67 MS, 0.31 G @ 122.50 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF MAZDA PROUFE 5
 LEFT REAR PASSENGER PE-V10 Y AXIS REDUNDANT ACCELERATION



Appendix C

SID Configuration And Performance Verification Data

Summary
SID Pre-Test And Post-Test Calibration
Configured For Left Side Impact

Date: January 21 - February 14, 2003

TRC Inc. Test Number: 065CAL02 & 03; 066CAL02 & 03

Laboratory Technician: Jack Willeke

Test Parameter	Specification	SID 65		SID 66	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - seated height (mm)	889-909	895	893	893	896
RH - Rib Height (mm)	502-520	509	510	511	510
HP - Hip Pivot Height (mm) ¹	99 ref	---	---	---	---
RD - Rib from Back Line (mm)	229-241	236	237	235	236
KV - Knee Pivot from Back Line (mm)	511-526	516	515	520	521
SW - Knee Pivot to Floor (mm)	490-505	498	499	499	498
HW - Hip Width (mm)	356-391	371	372	387	388
Thorax Impacts					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	29	31	25	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Upper Rib (g's)	37-46	39.7	42.3	37.2	39.2
Lower Rib (g's)	37-46	38.8	39.6	40.5	38.9
Lower Spine (g's)	15-22	18.1	19.1	20.3	20.9
Pelvis Impacts					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	28	31	29	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Pelvis (g's)	40-60	54.1	46.6	46.8	52.5

¹ Dimension not recorded.

Calibration Test Results

Pre-Test

SJD: 065

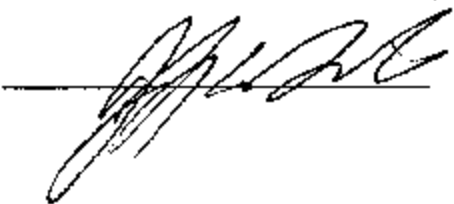
Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber passed all test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.


Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 02

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	516 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	371 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	509 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	236 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	176 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	No

Technician



Approved



TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STL06502

572F SID SN065 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	18.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020403.1533;1

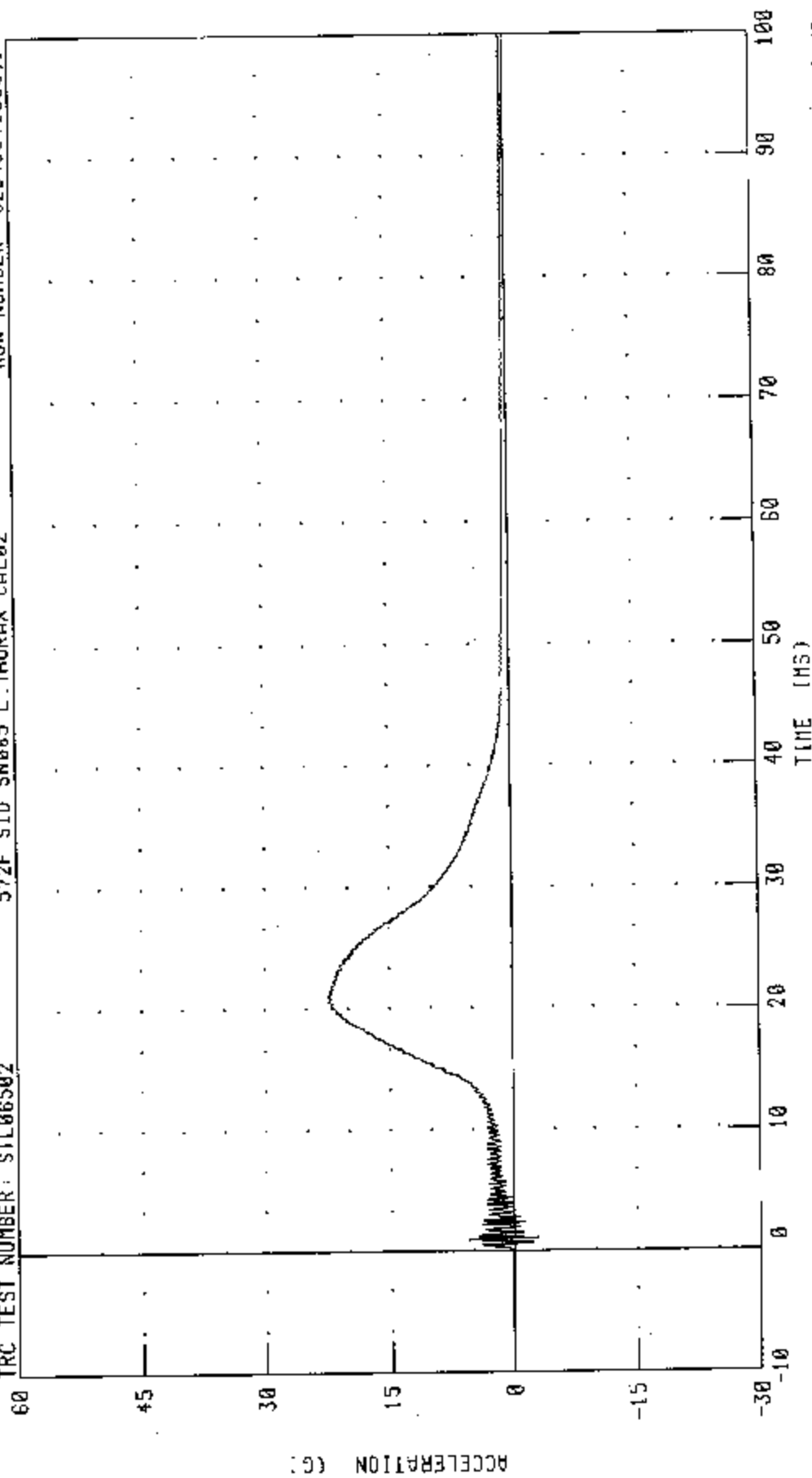
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL06502

572F SID SN885 L THORAX CAL02

RUN NUMBER: 020403.1533.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

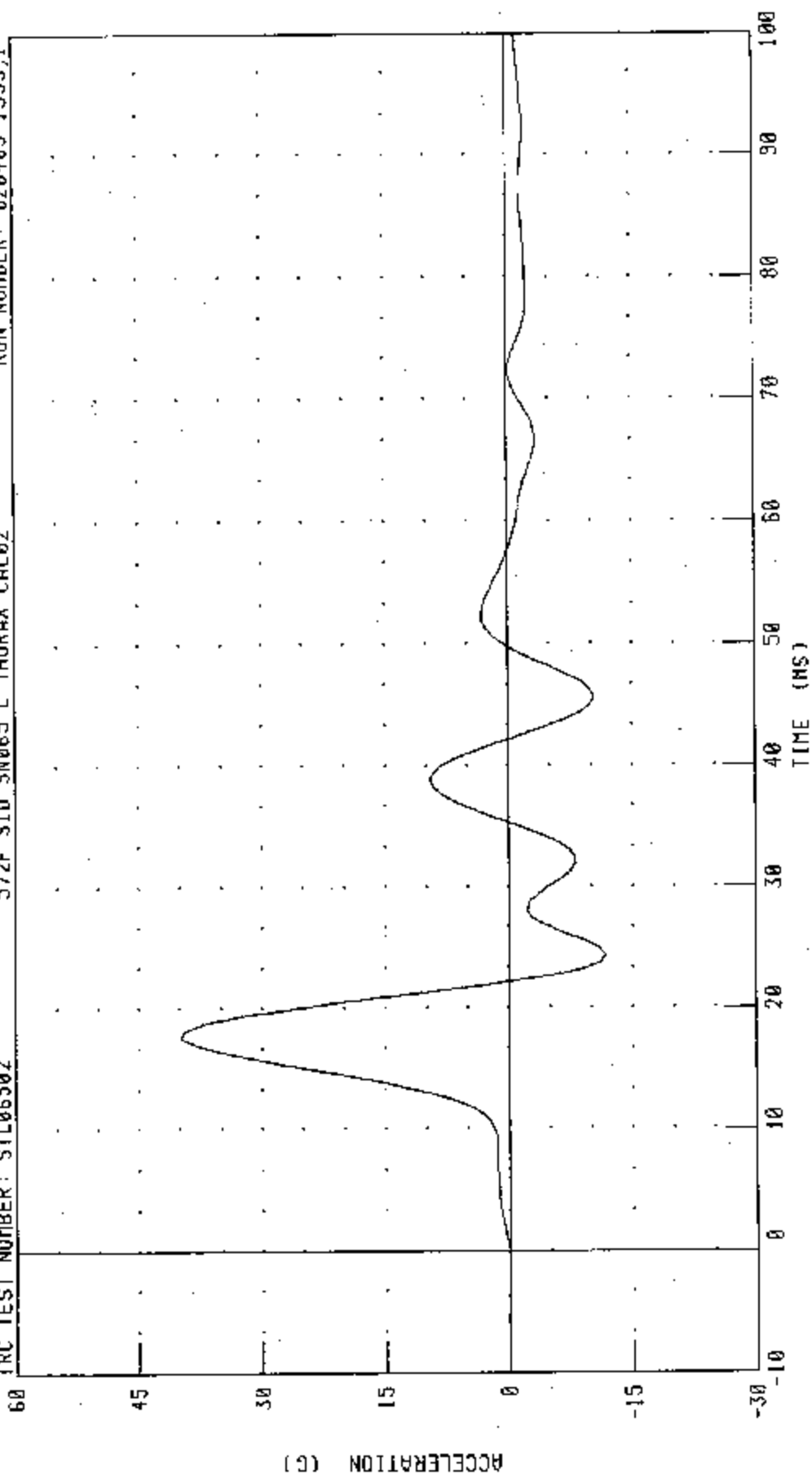
PEAK DATA: 22.49 G @ 21.04 MS, -2.98 G @ 1.12 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: S1L06502

572F S1D SN065 L THORAX CAL02

RUN NUMBER: 020403 1533.1



CHANNEL: LURVC FILTER: FIR 100

PEAK DATA: 39.68 G @ 17.50 MS, -11.78 G @ 24.38 MS

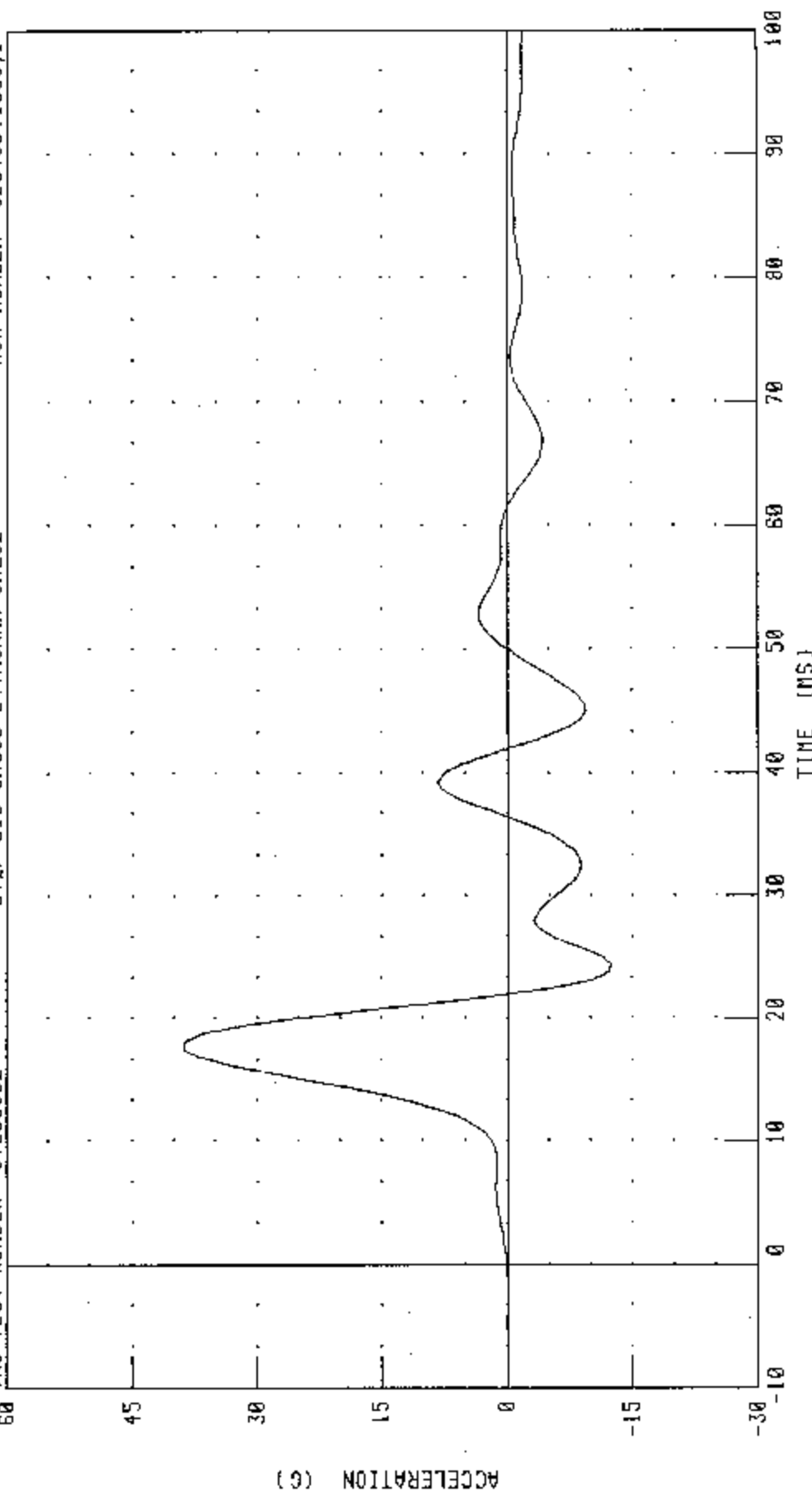
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: ST106502

572F SID SN065 L THORAX CAL02

RUN NUMBER: 020403.1533;1



CHANNEL: LLRYG FILTÉR: FIR 100

PEAK DATA: 38.85 G @ 17.50 MS; -12.52 G @ 24.38 MS

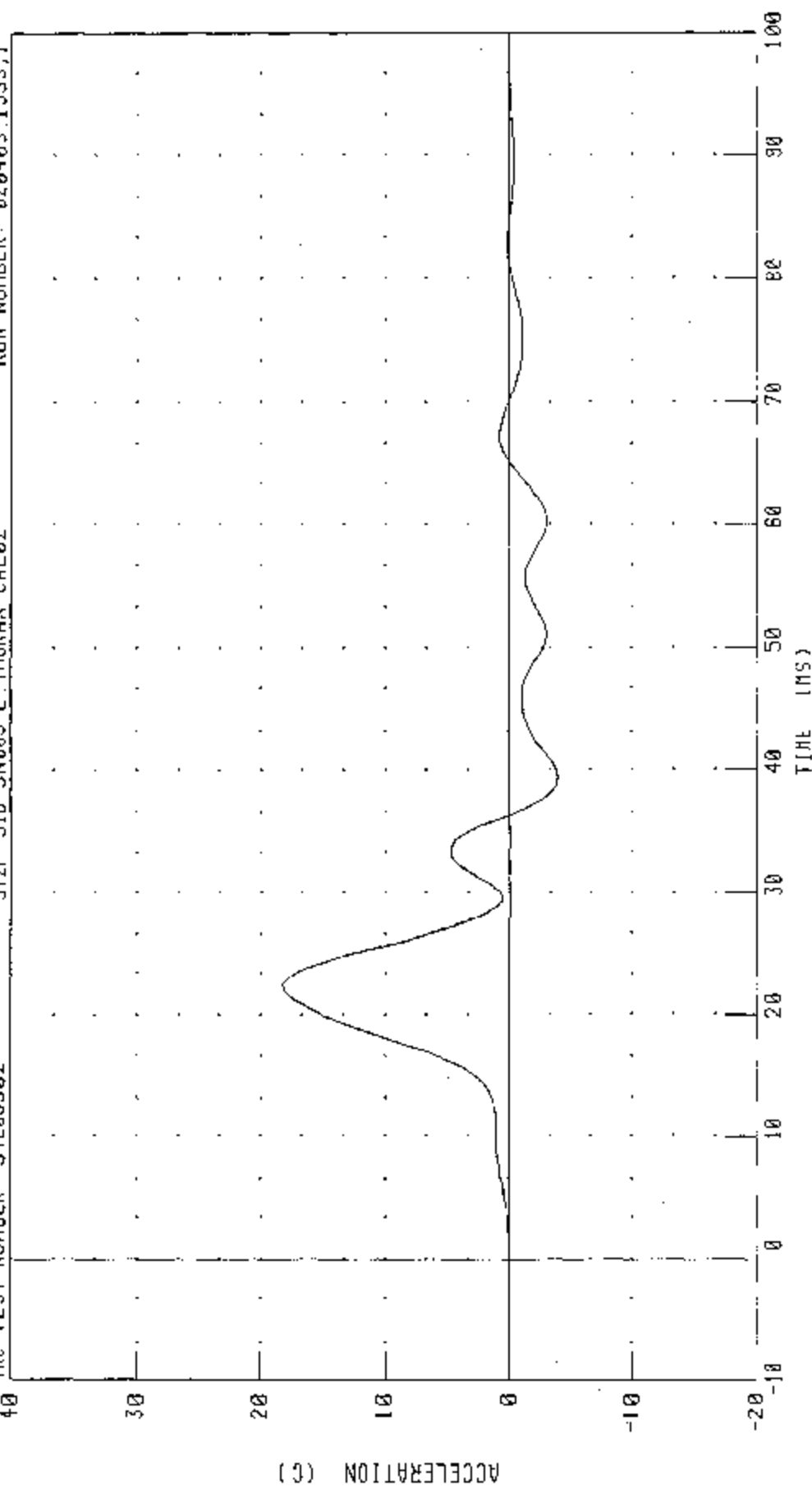
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06502

572F SID SN065 L THORAX CAL02

RUN NUMBER: 020403.1533.1



CHANNEL T12YC FILTER: FIR 100

PEAK DATA: 18.14 G @ 22.50 MS, -3.94 G @ 39.38 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN065 DAMPER TEST CAL02

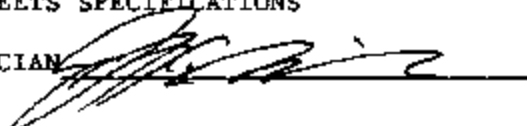
TEST NUMBERS: DP06502A, DP06502B, DP06502C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	791 N
2.71 M/S	DISPLACEMENT	29.7 - 34.5 MM	31.1 MM
VELOCITY	FORCE	1706 - 2072 N	1715 N
4.24 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.5 MM
VELOCITY	FORCE	3784 - 4495 N	4243 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.2 MM

DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020303.0805;1

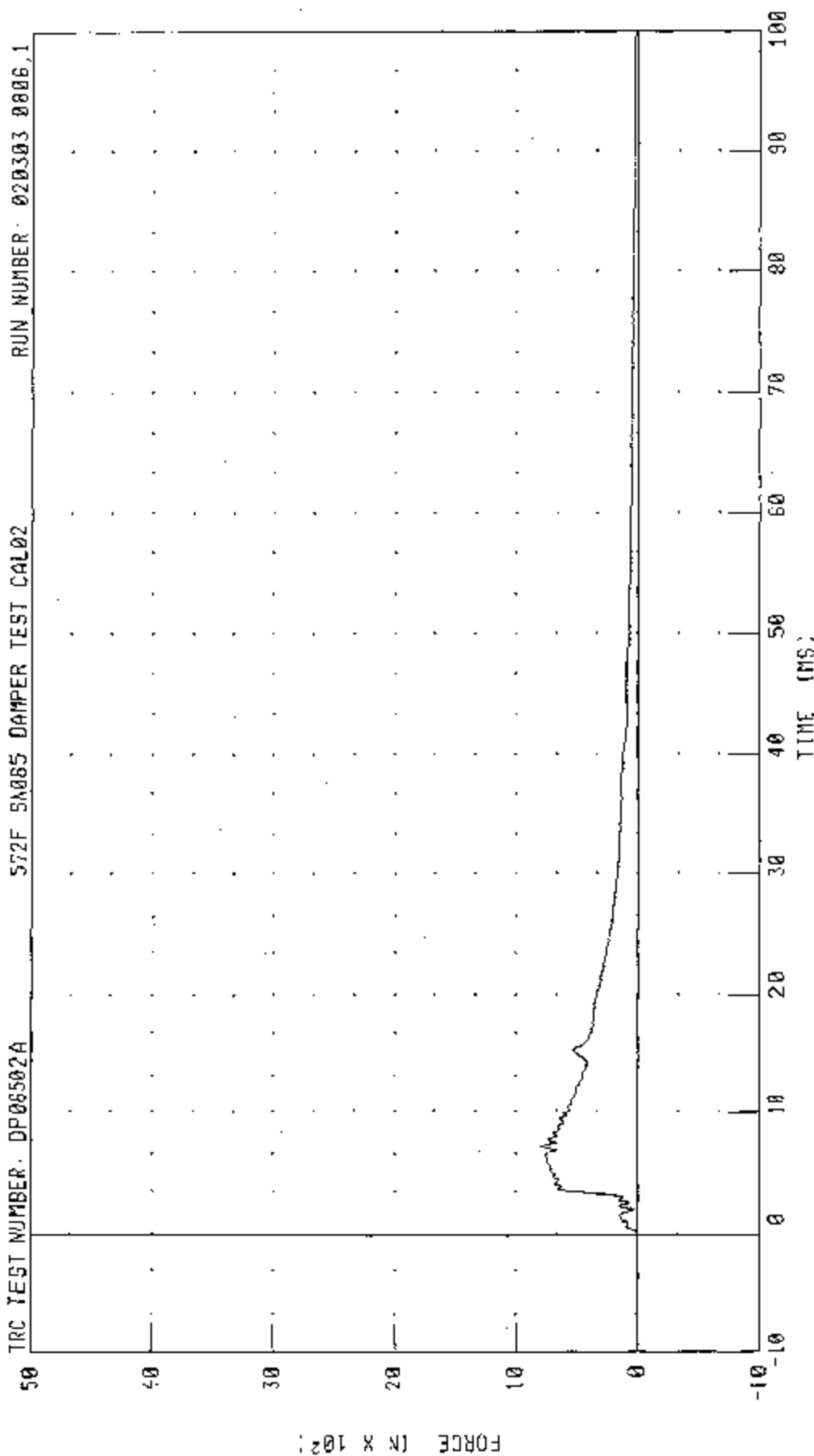
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06502A

572F 5M065 DAMPER TEST CAL02

RUN NUMBER: 020303 0006,1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 790 76 N @ 7.36 MS, -1.99 N @ -6.96 MS

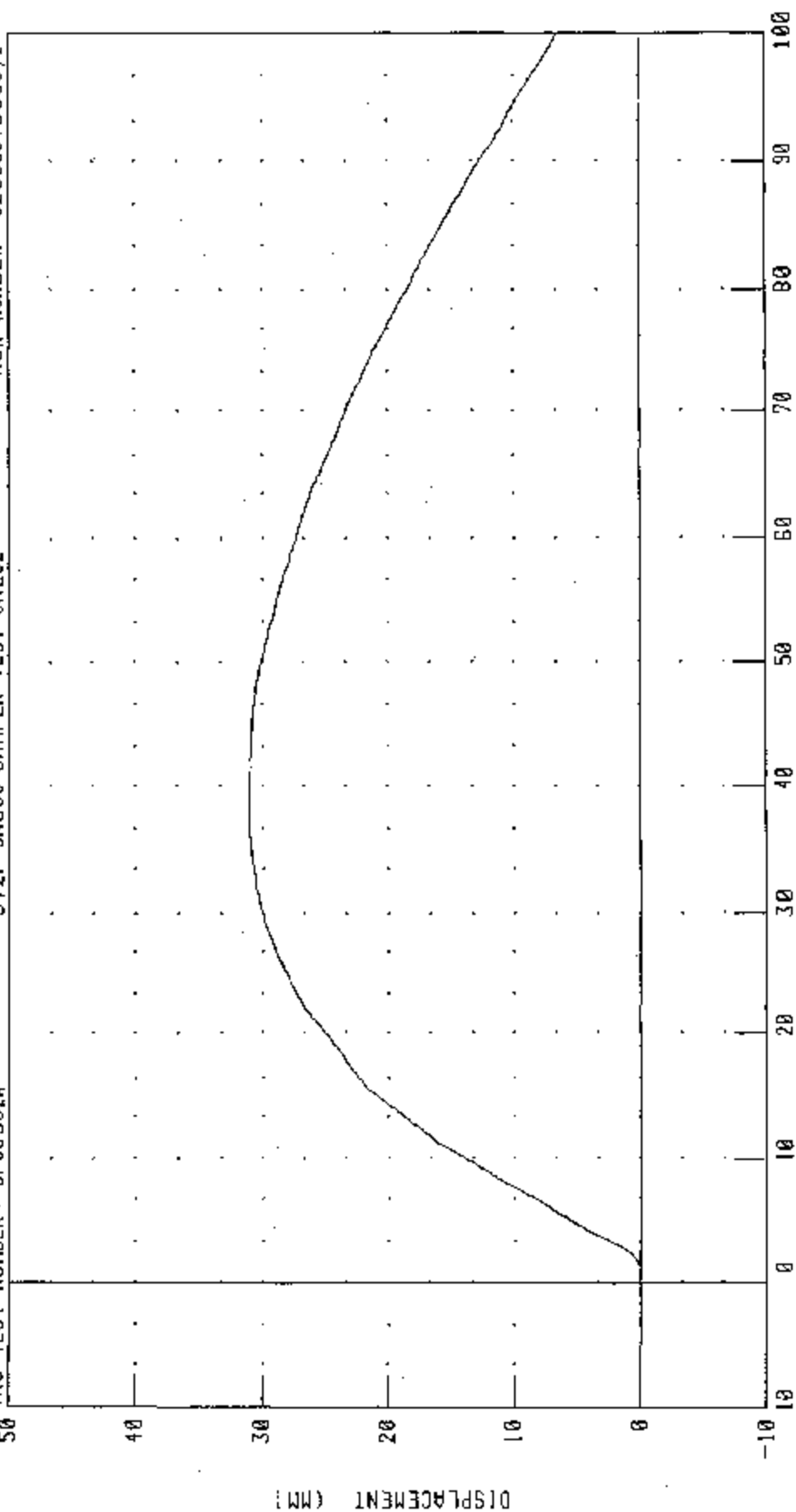
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP06502A

572F SN085 DAMPER TEST CAL02

RUN NUMBER 020303.00006;1



TIME (MS)

CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 31.00 MM @ 37.75 MS; 0.00 MM @ -8.00 MS

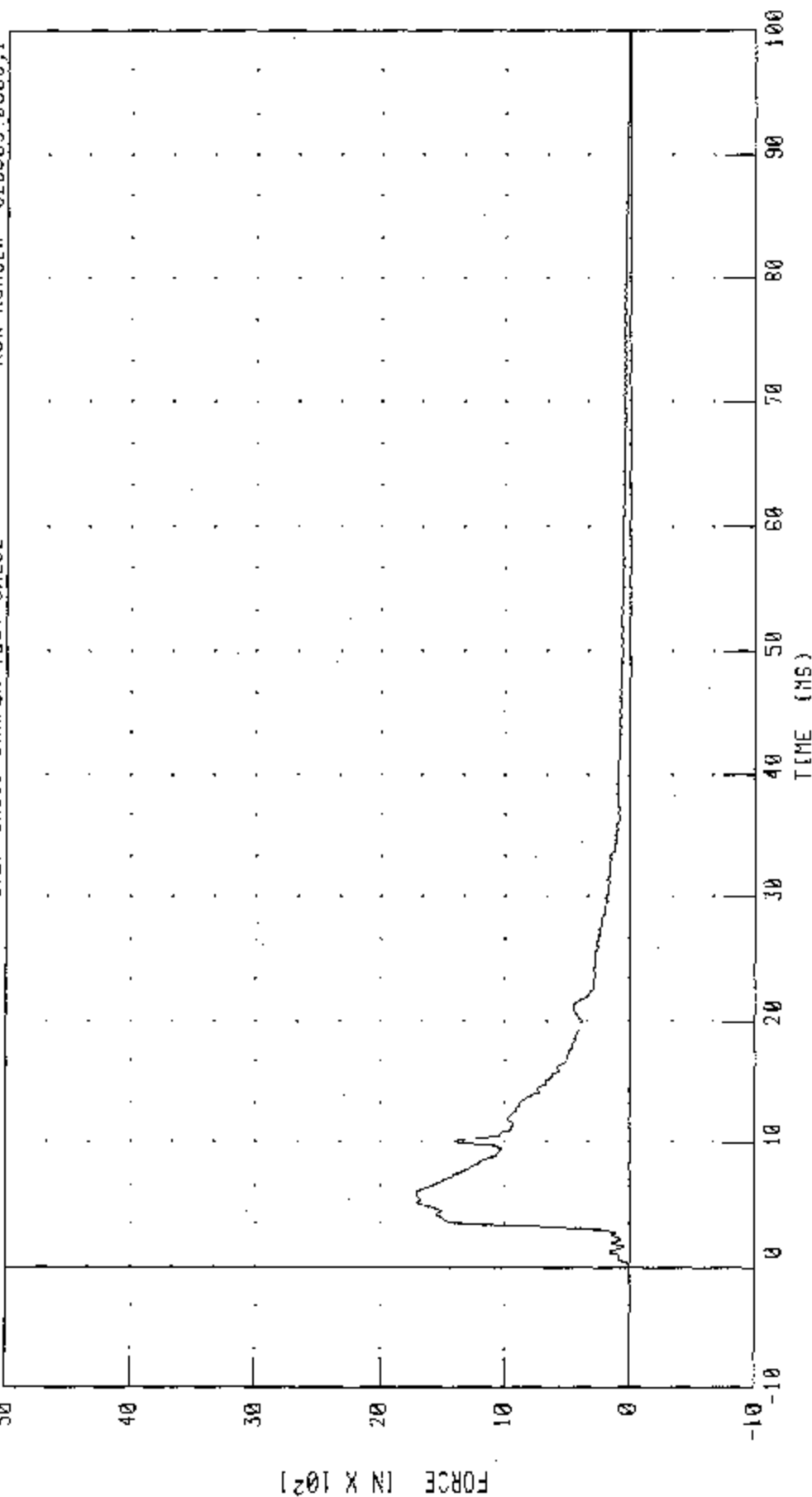
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: 0P06502B

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303 0806,1



PEAK DATA: 1714.60 N @ 0.16 MS, 1.52 N @ 8.24 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

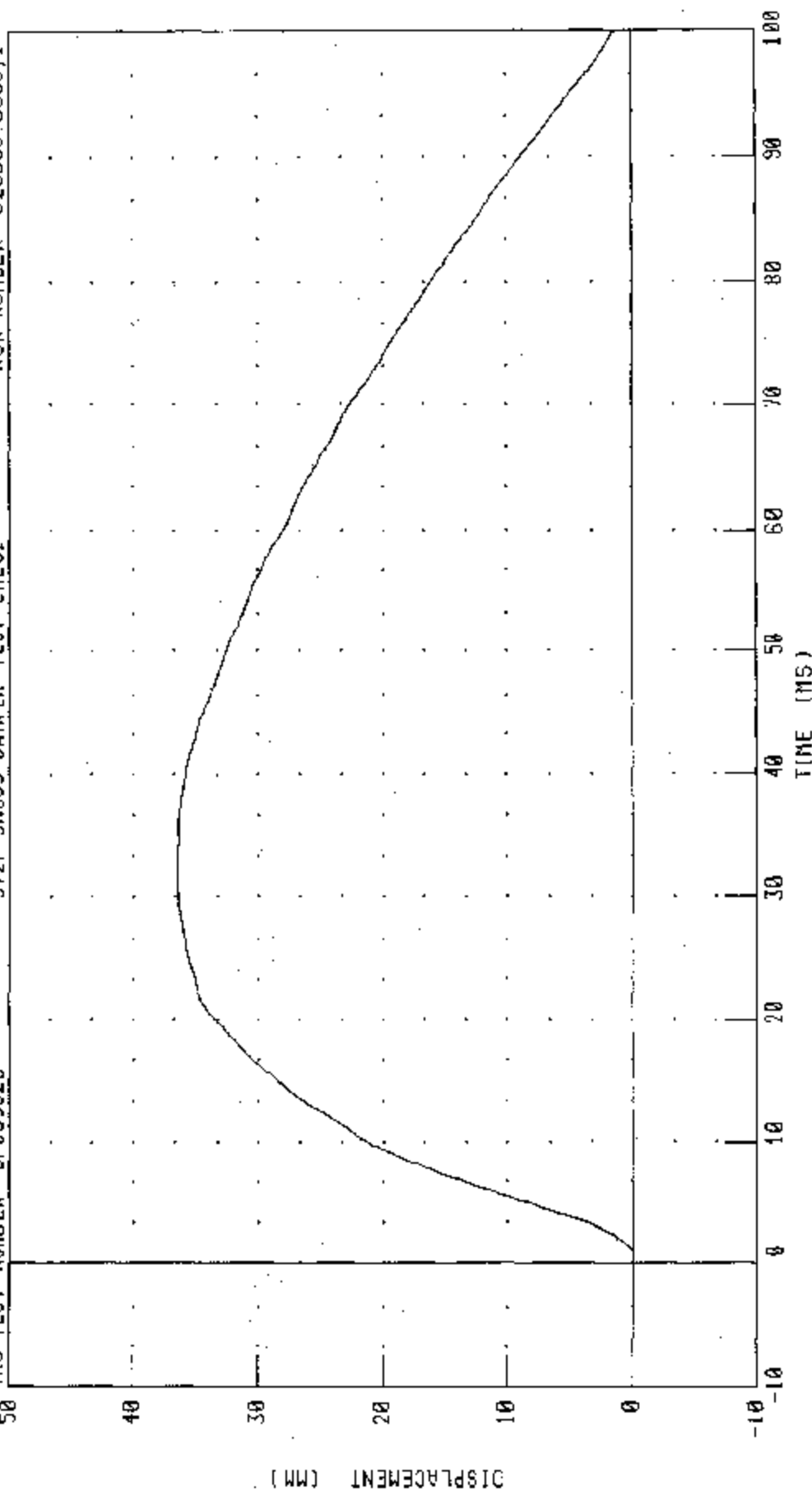
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06502B

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303.0806;1



TIME (MS)

PEAK DATA: 36.48 MM @ 31.44 MS, -0.01 MM @ -2.80 MS

CHANNEL: CSTYD FILTER CH. CLASS 1000

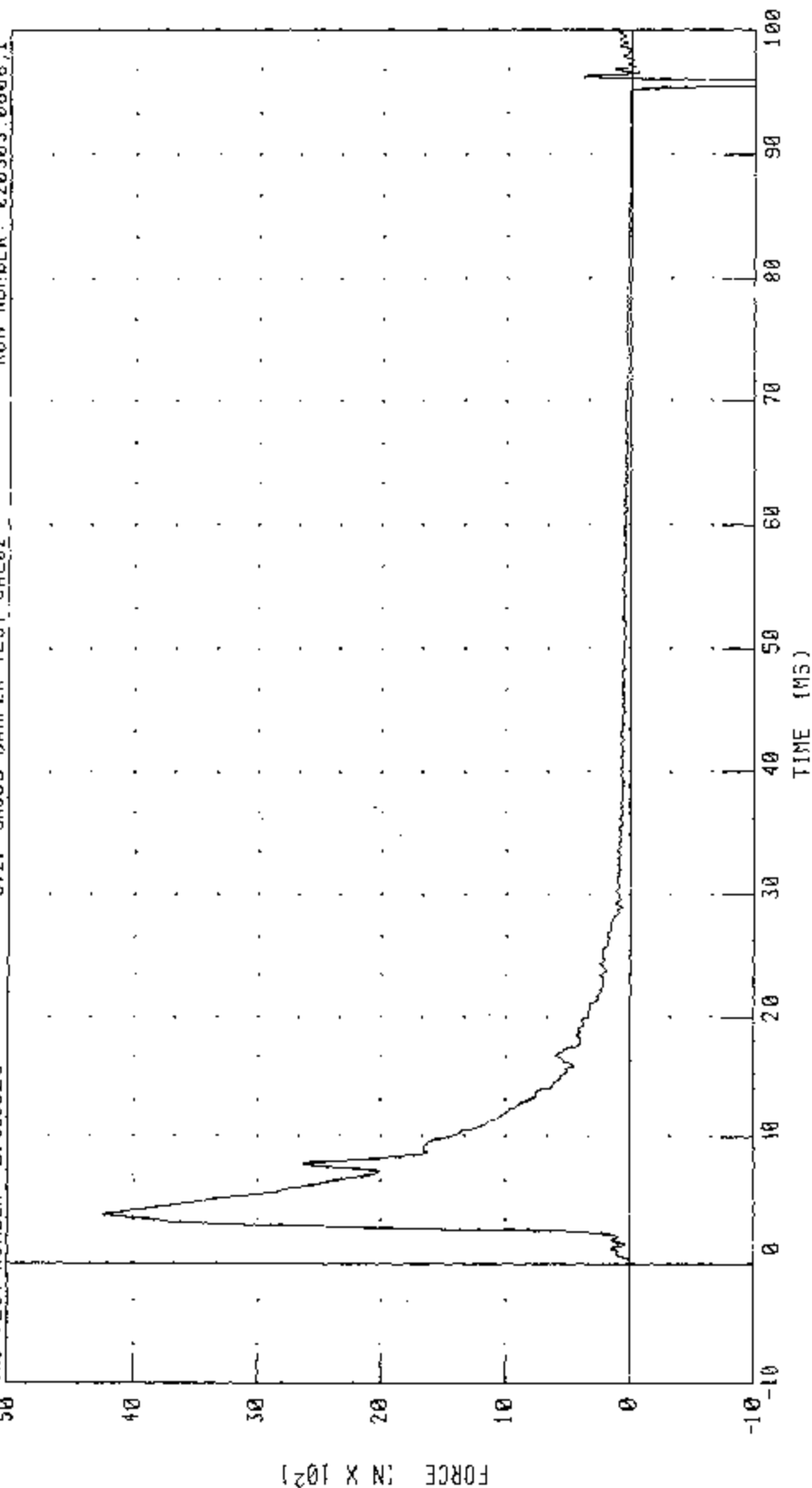
PART 572-F S.I.D... THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06502C

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303.0806.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4243.19 N @ 3.75 MS; -1440.15 N @ 95.60 MS

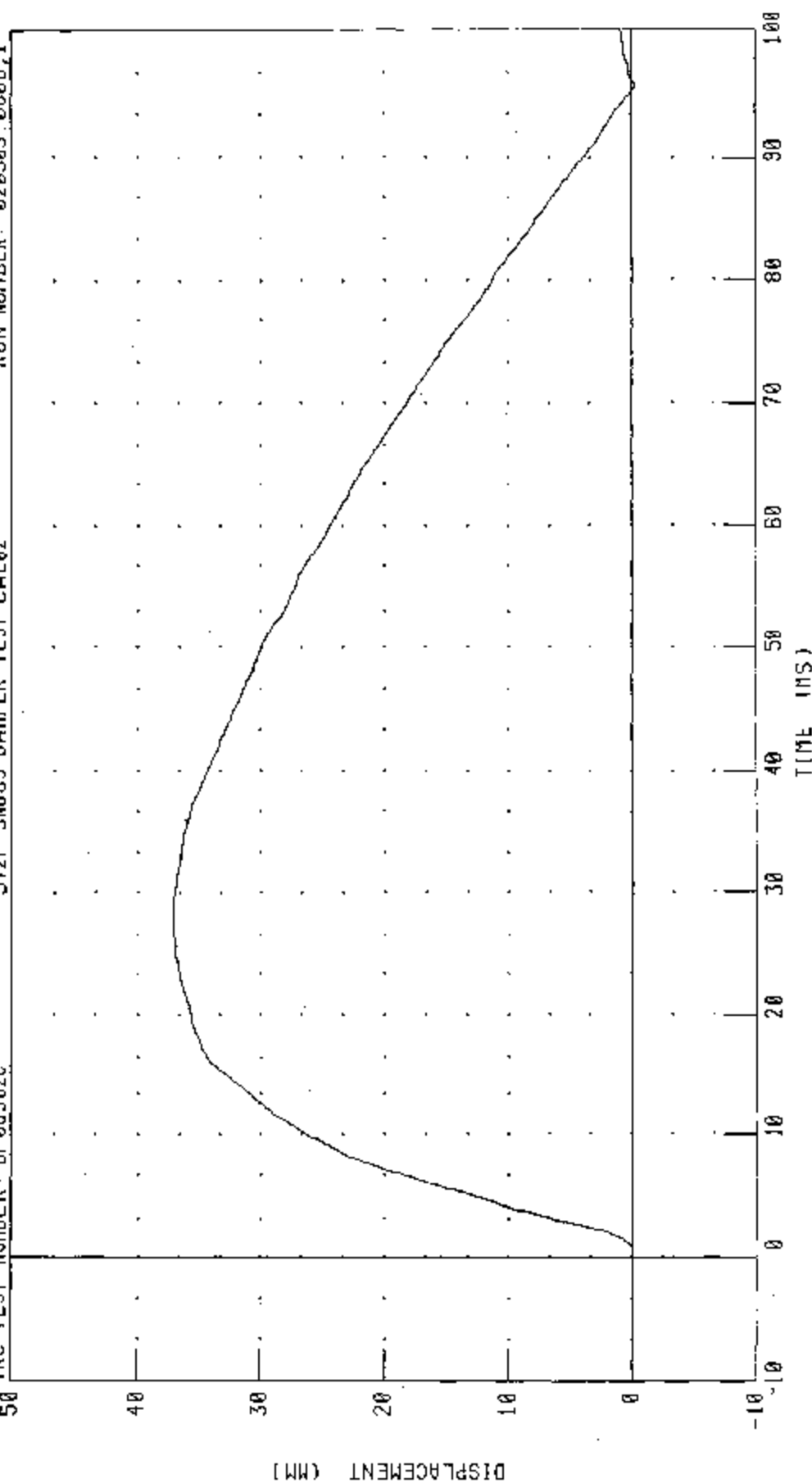
PART 572-F S.I.D THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP06502C

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303.0806.1



CHANNEL: CSTYD FILTER: CH. CLASS 1000

PEAK DATA: 37.18 MM @ 28.80 MS, -0.26 MM @ 95.68 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 21-Jan-03

TRC, INC. TEST NO: 065C02LF1 572B SN 065 TORSO FLEX CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	17 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	149 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	201 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	255 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	5 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

572B Abdomen Compression Test

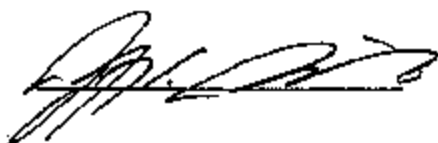
SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.9 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01.22.2003 10:35:22 652

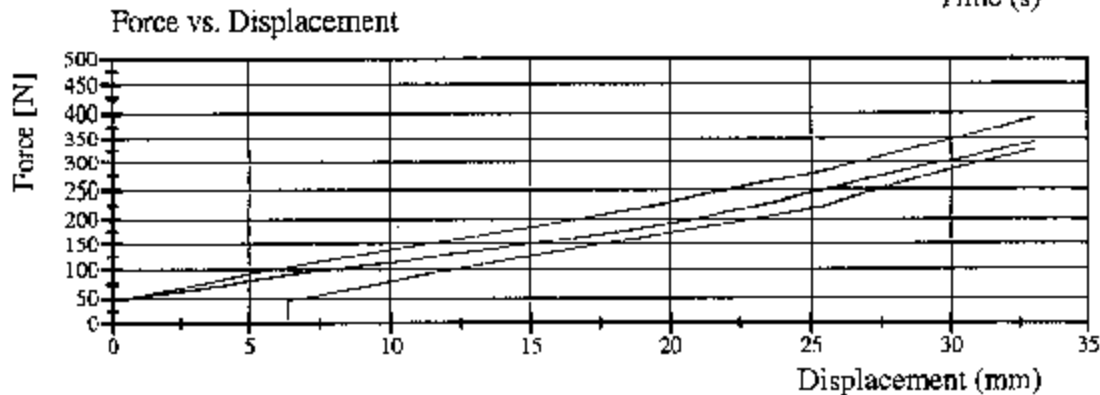
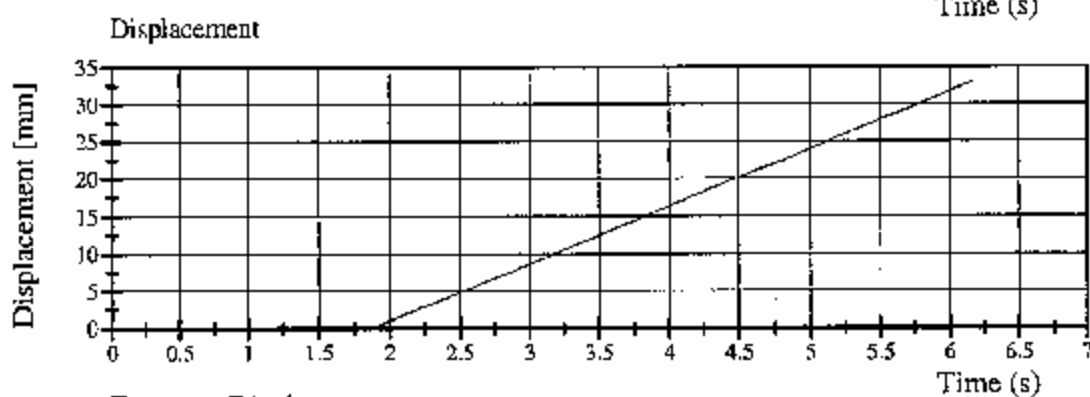
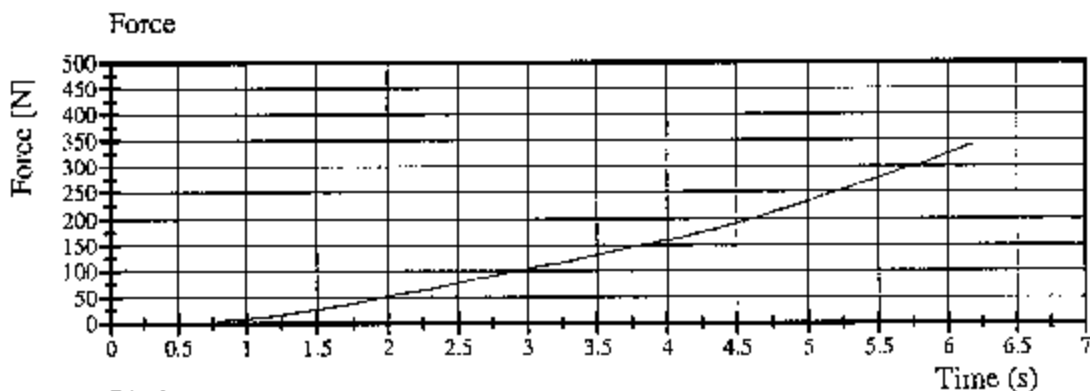


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003



01.22.2003 10:35:23 652



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

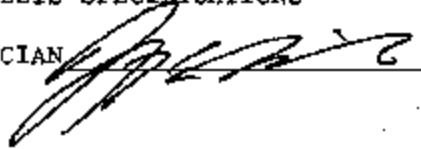
TRC INC.

TEST NO: SPL06502

572F SN065 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 ~ 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	28.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	54.1 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020403.1542;1

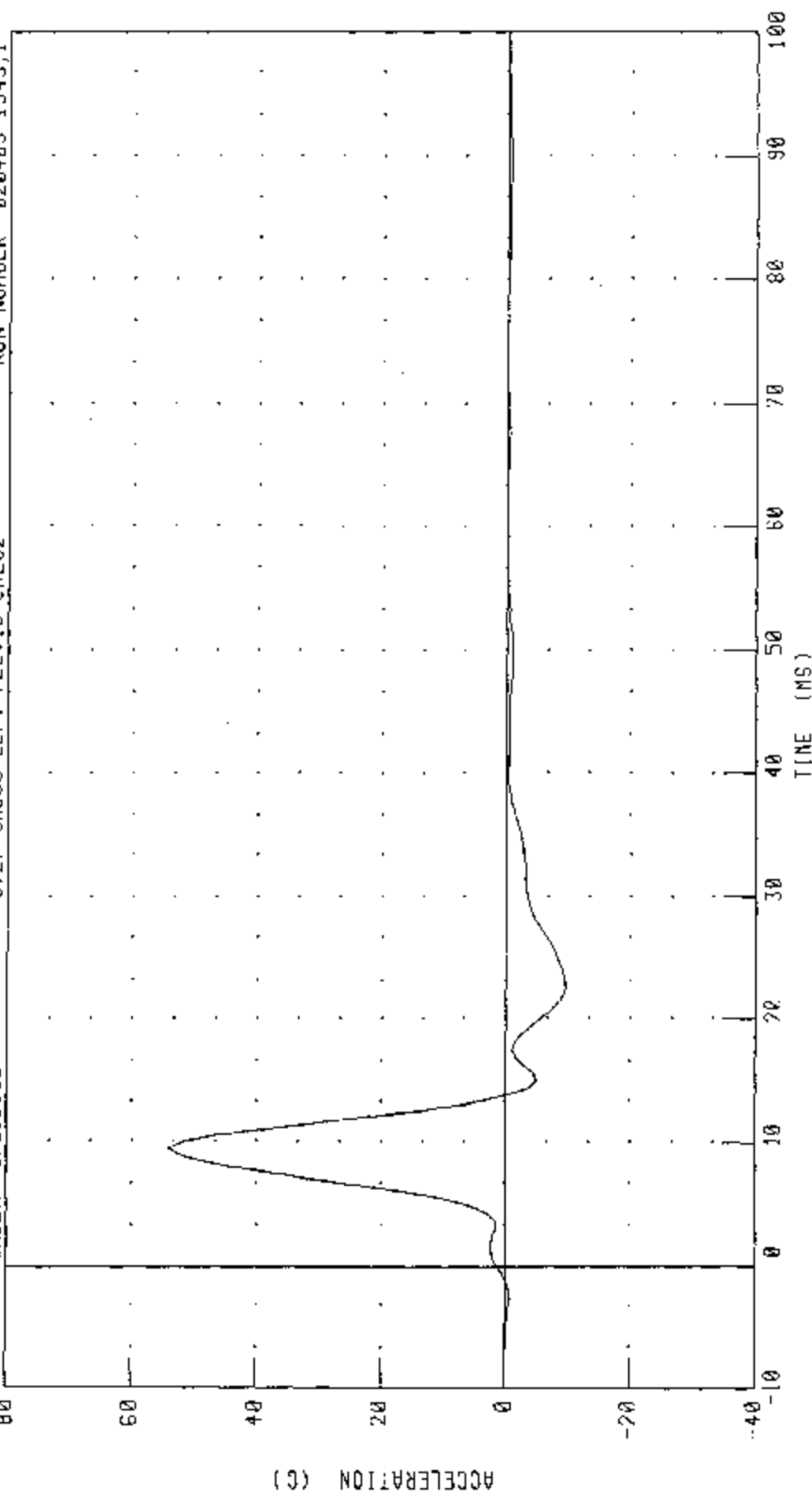
PART 572-F S I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

IRC TEST NUMBER: SPL06502

572F SN065 LEFT PELVIS CAL02

RUN NUMBER 020403 1543.1



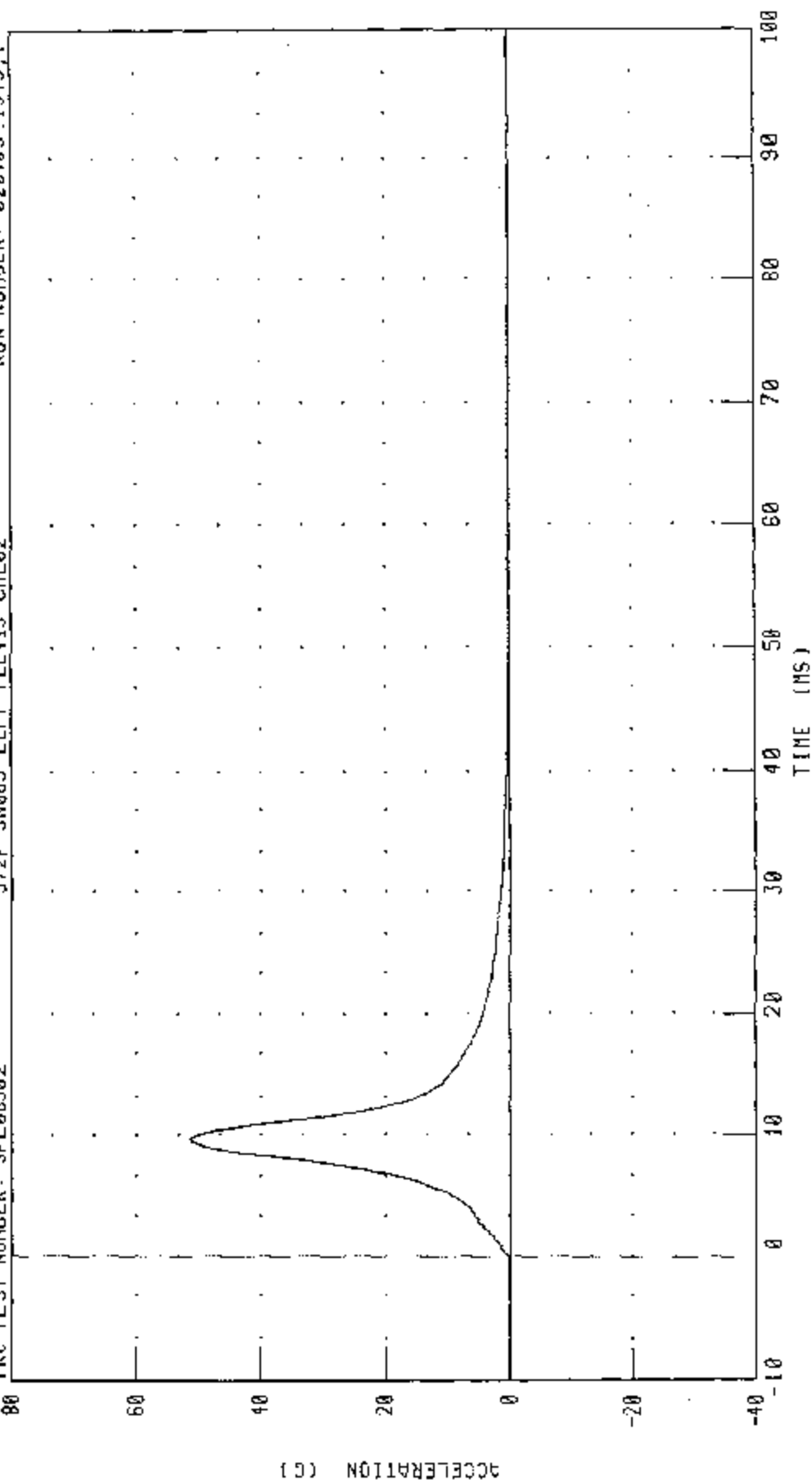
CHANNEL: PELVYC FILTER: FIR 100

PEAK DATA: 51.13 0 0 9.37 MS, -9.59 G @ 23.13 MS

PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06502 572F SN065 LEFT PELVIS CAL02 RUN NUMBER: 020403.1543.1



CHANNEL: PENXC FILTER: CH CLASS 1000

PEAK DATA: 51.50 0 0 9.68 MS, -0.19 0 0 51.52 MS

Calibration Test Results

Pre-Test

SID: 066

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber passed all test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

Transportation Research Center Inc.

572F SID Dummy

External Dimensions

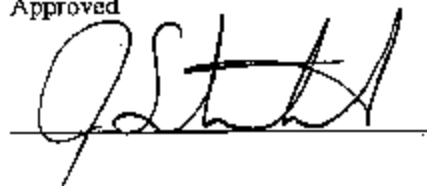
Serial No. 066 Calibration No. 02

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	387 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	235 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

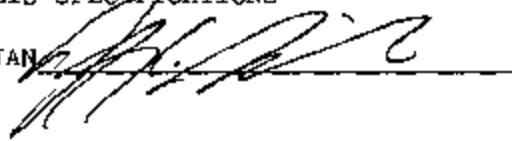
TEST NO: STL06602

572F SID SN066 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	37.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	40.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.3 G

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020403.1322;1

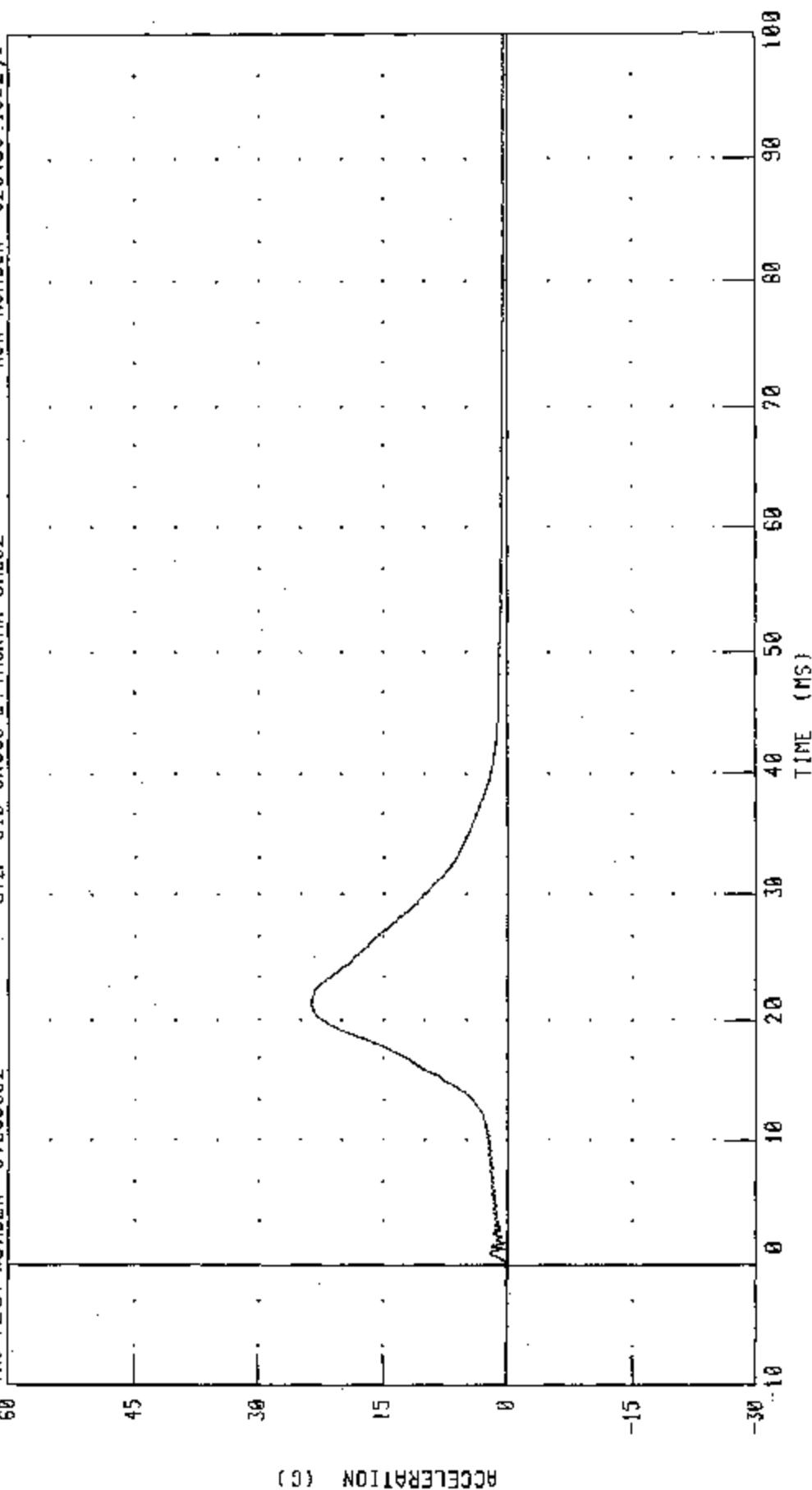
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

IRC TEST NUMBER: STL066802

572F SID SN066 L THORAX CAL02

RUN NUMBER: 020403.1322.1



CHANNEL: PENXG FILTR: CH. CLASS 1000

PEAK DATA: 25.67 G @ 21.20 MS; 0.02 G @ -0.96 MS

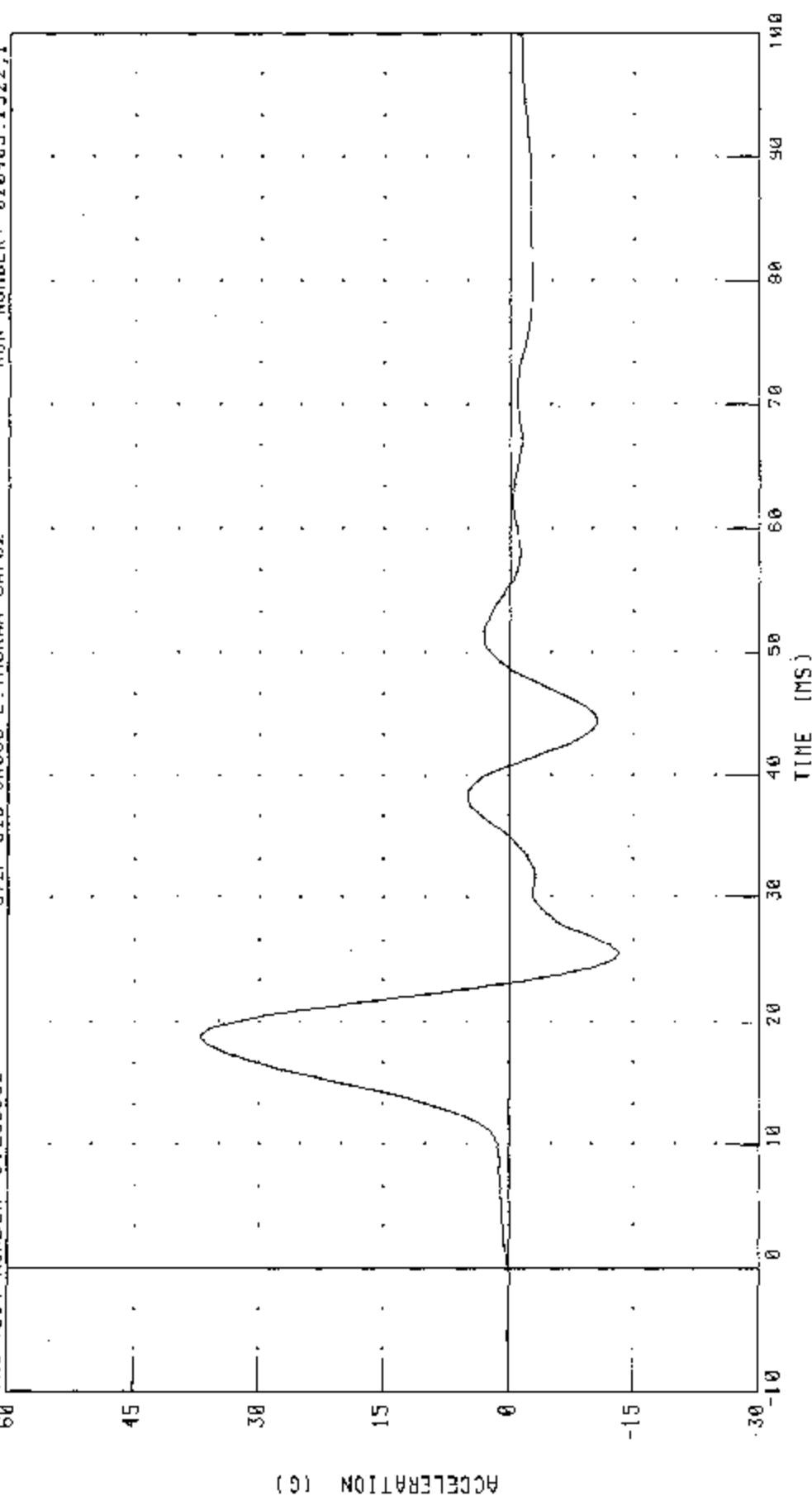
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06602

572F S.I.D. SN066 L.THORAX CAL02

RUN NUMBER: 020405.1322.1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 37.25 G @ 18.75 MS; -13.21 G @ 25.63 MS

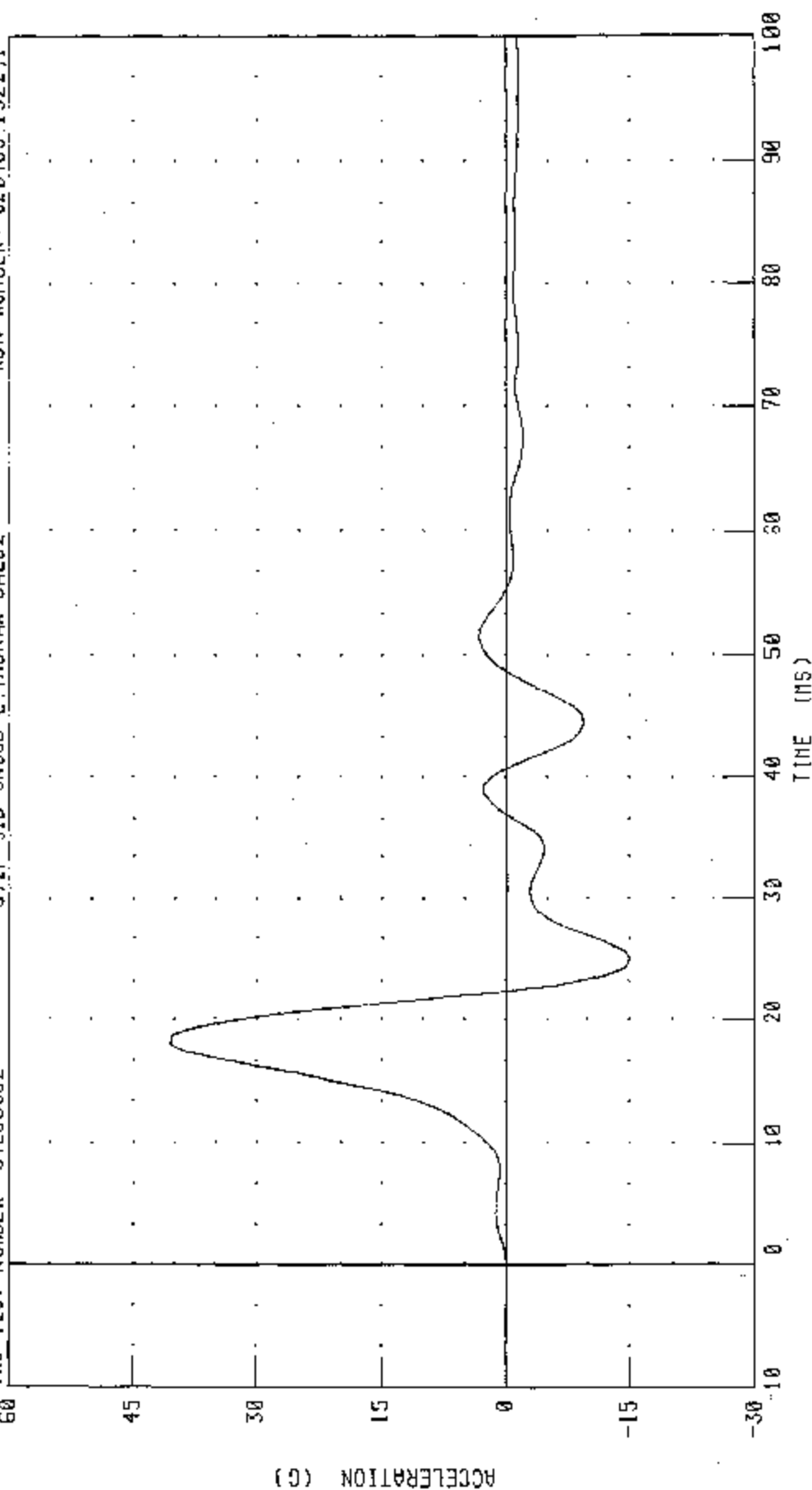
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06602

572F SID SN066 L THORAX CAL02

RUN NUMBER: 020403.1322.1



CHANNEL: LLRYC FILTER: FIR 100

PEAK DATA: 40.51 G @ 18.13 MS, -15.00 G @ 25.00 MS

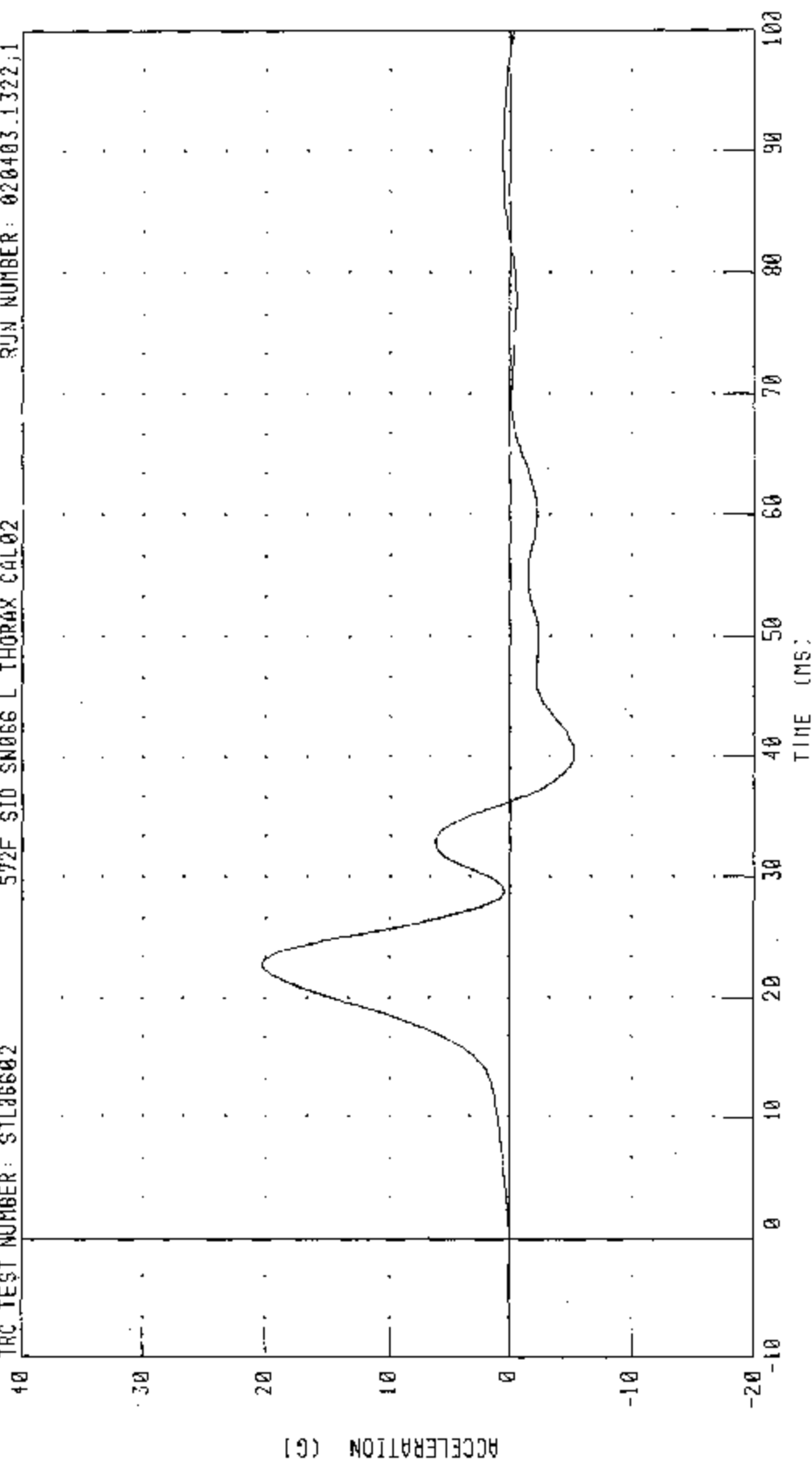
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL36602

572F S10 SN066 L THORAX CAL02

RUN NUMBER: 020403.1322.1



TIME (MS)

CHANNEL: 112YG FILTER: FIR 120

PEAK DATA 20.30 G @ 22.50 MS; -5.28 G @ 40.63 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN066 DAMPER TEST CAL02

TEST NUMBERS: DP06602A, DP06602B, DP06602C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	797 N
2.70 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1877 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.9 MM
VELOCITY	FORCE	3703 - 4402 N	4387 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.8 MM

DAMPER SETTING = 5.0

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020303.0731;1

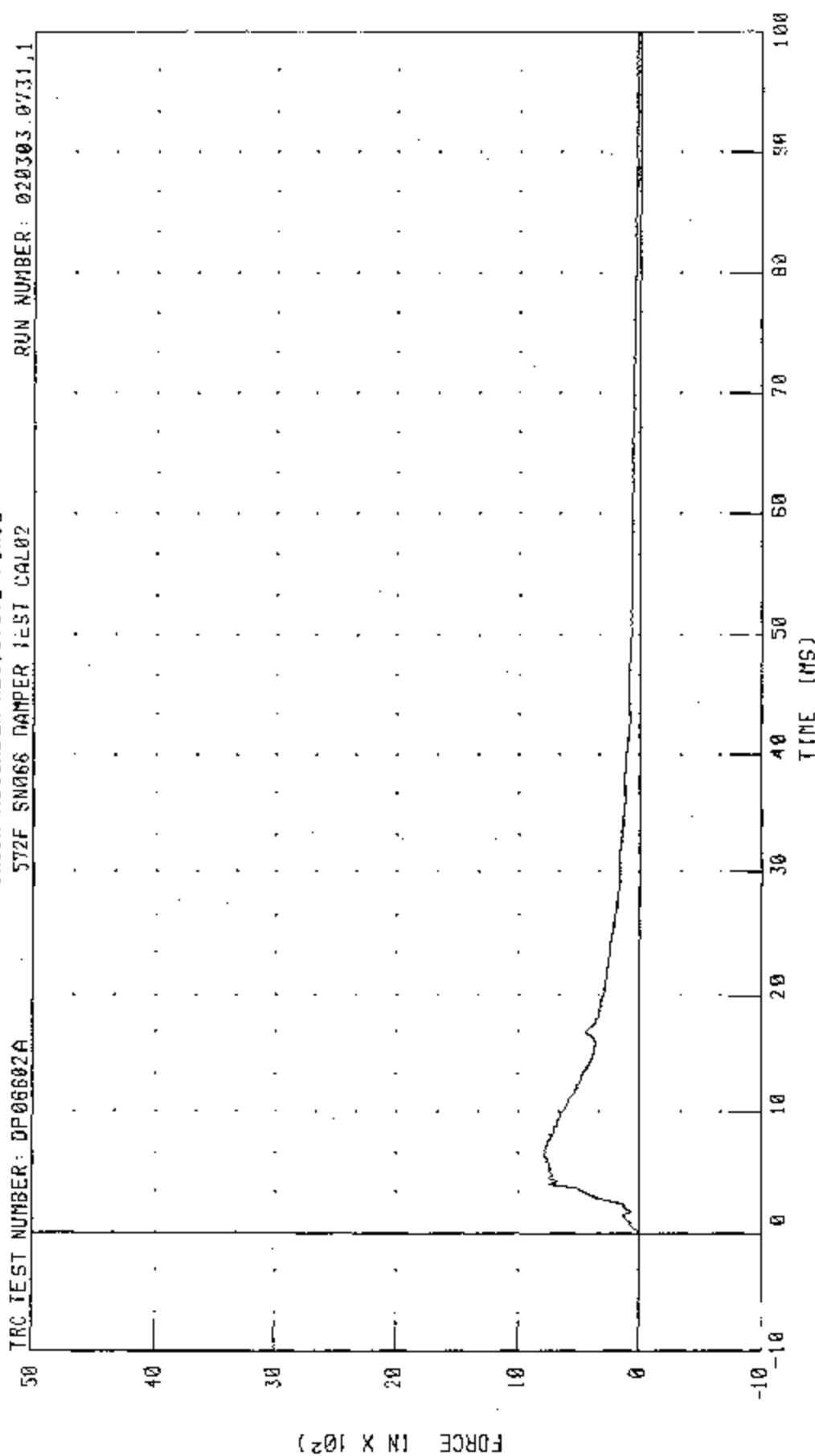
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06602A

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731,1



CHANNEL: DA1PF FILTER: CH CLASS 1000

PEAK DATA: 796.77 N @ 6.48 MS, -2.08 V @ -10.00 MS

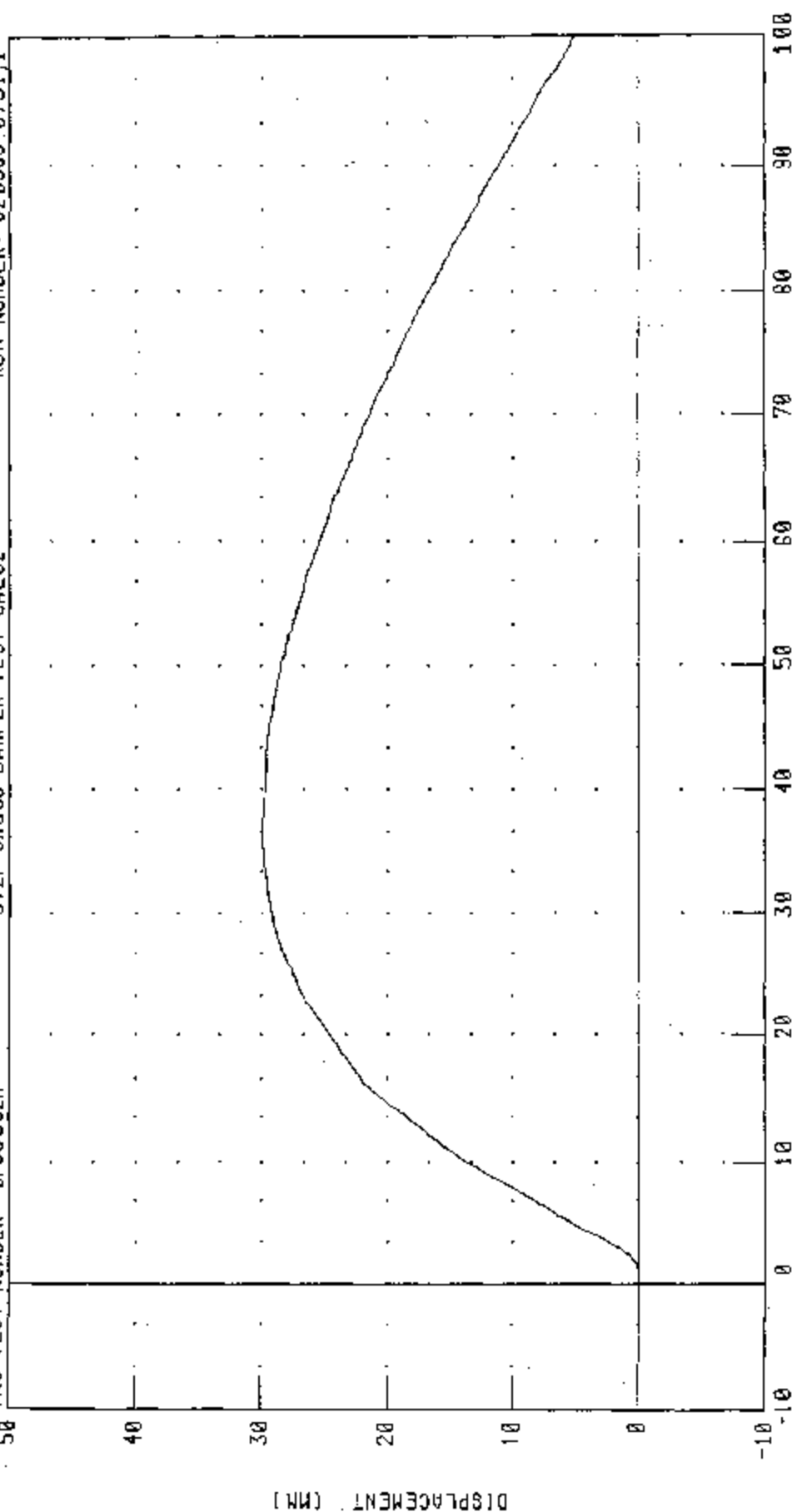
PART 572-F S.I.O. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06602A

572F SMO66 DAMPER TEST CAL02

RUN NUMBER: 020303 0731.1



TIME (MS)

CHANNEL: CSTYD FILTER: CH. CLASS 1800

PEAK DATA 29.94 MM @ 36.24 MS; 0.00 MM @ -4.40 MS

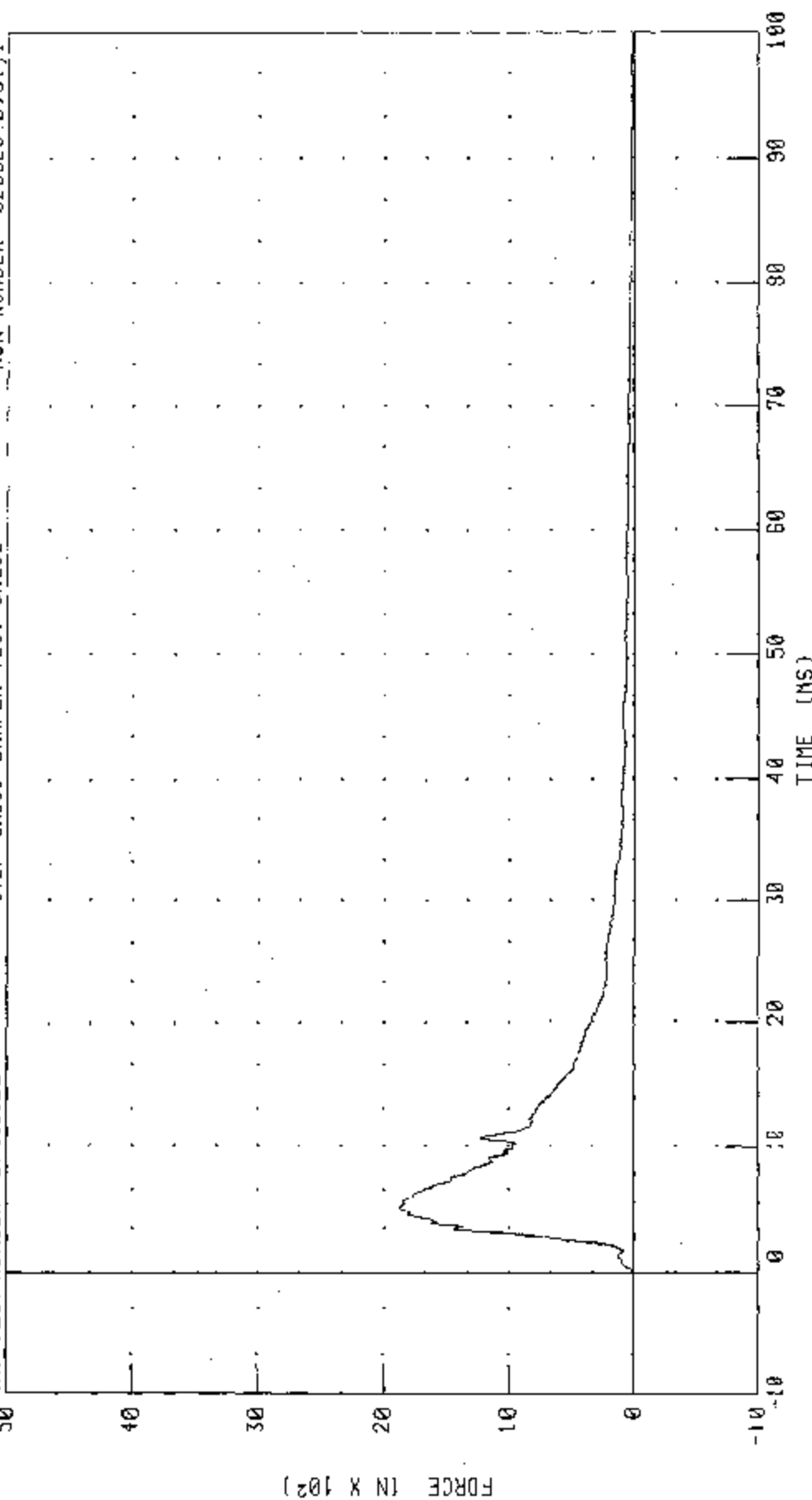
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

IRC TEST NUMBER: DP06602B

572F SN066 DAMPER TEST CAL02

RUN NUMBER 020303.0731.1



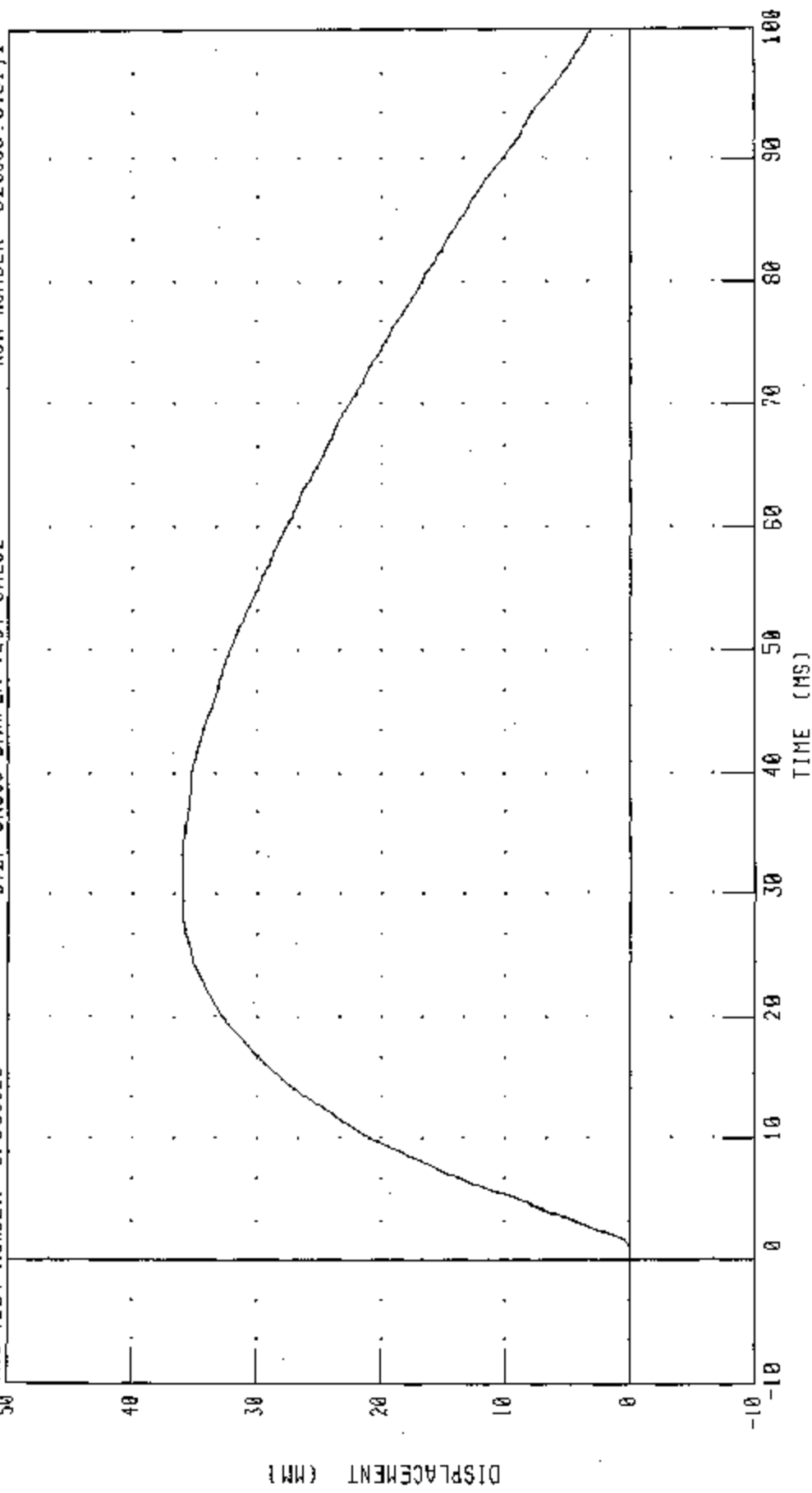
PEAK DATA: 1876.76 N @ 5.12 MS; -2.32 N @ -0.95 MS

CHANNEL: DAMPF FILTER: CU. CLASS 1000

PART 572-F S I D THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER DP06602B 572F SN066 DAMPER TEST CAL02 RUN NUMBER: 020303.0731;1



CHANNEL CSTY3 FILTER: CH. CLASS 1000

PEAK DATA: 35.94 MS; 0.00 MM; -7.68 MS

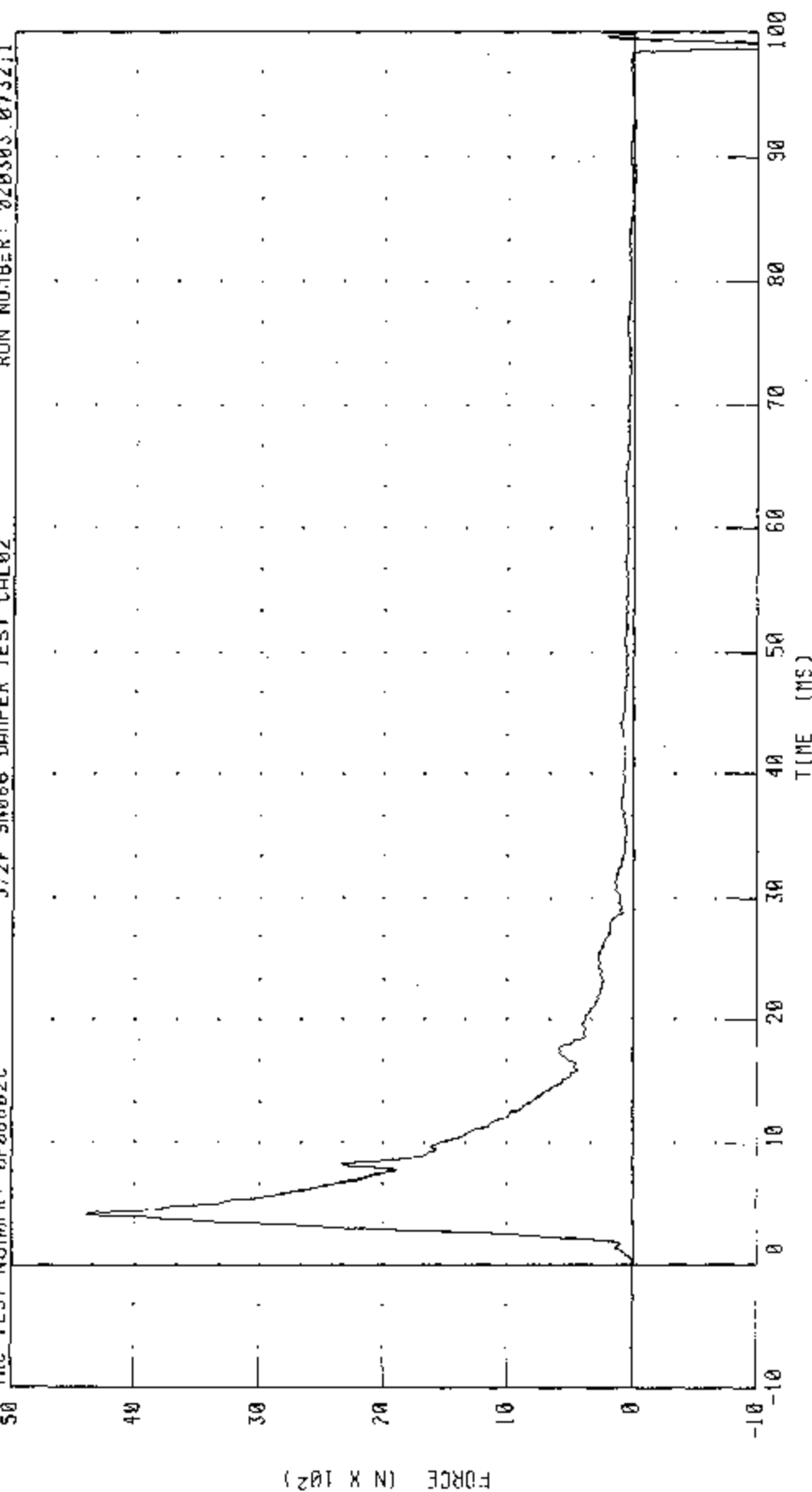
PART 572-- S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06602C

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303 0732.1



CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 4387.36 N @ 4.16 MS, -1635.86 N @ 98.88 MS

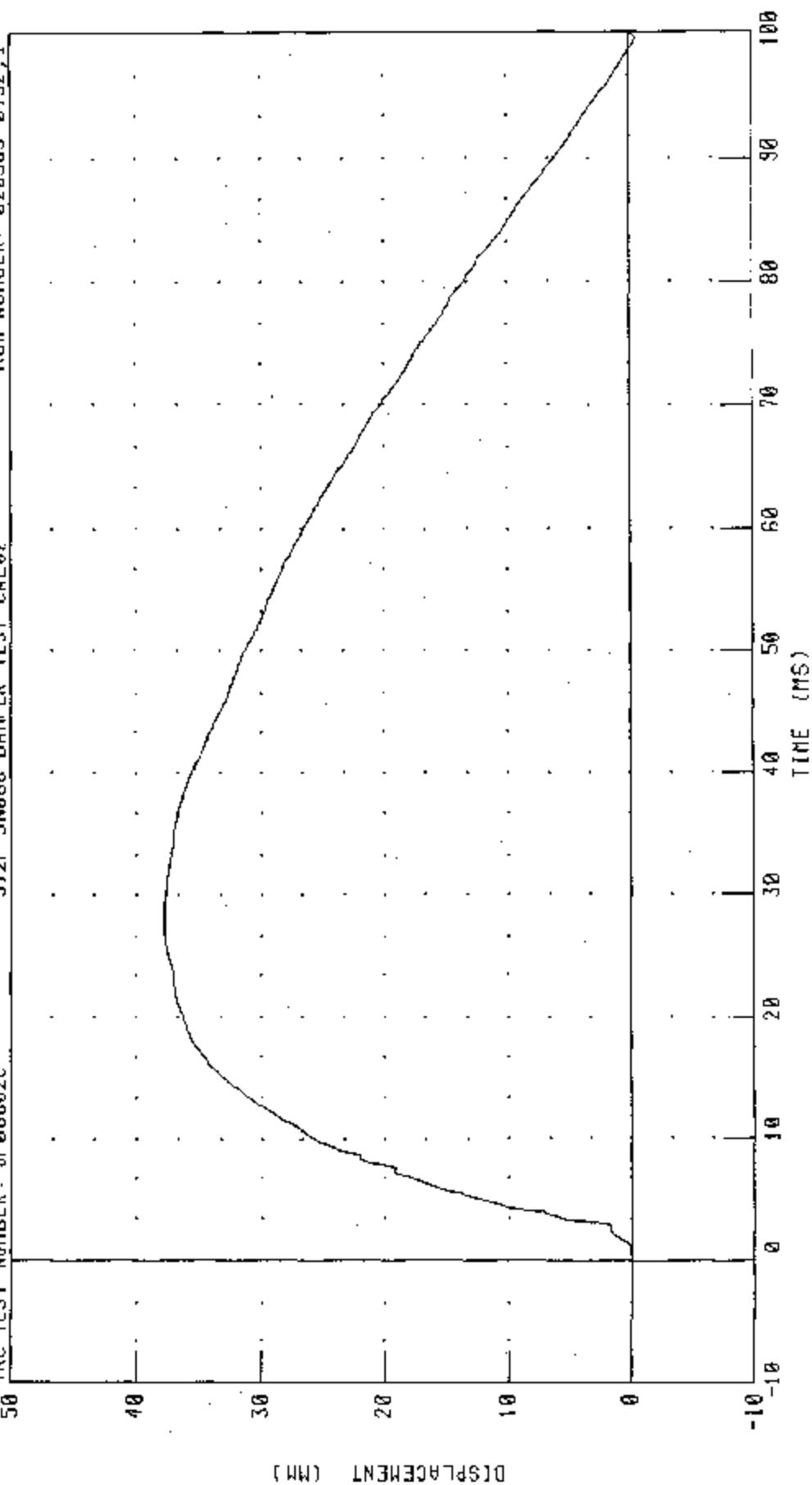
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: 0P06602C

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303 0732.1



CHANNEL: CSTVD FILTER: CH. CLASS 1000

PEAK DATA: 37.76 MM @ 27.76 MS; -0.52 MM @ 99.36 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 03-Feb-03

TRC, INC.

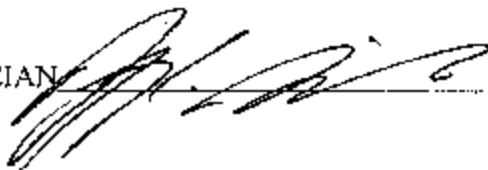
TEST NO: LF06602

572B SN 066 TORSO FLEX CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 – 70 %	46 %
FORCE AT 0 DEG. FLEXION	-27 – 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 – 151 N	137.1 N
FORCE AT 30 DEG OF FLEXION	151 – 205 N	189.1 N
FORCE AT 40 DEG OF FLEXION	205 – 258 N	241.1 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	6 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

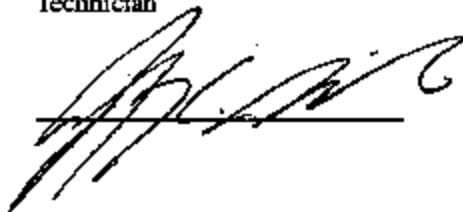
SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003

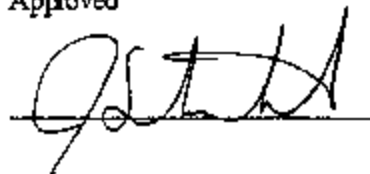
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01/30/2003 15:18:25 9

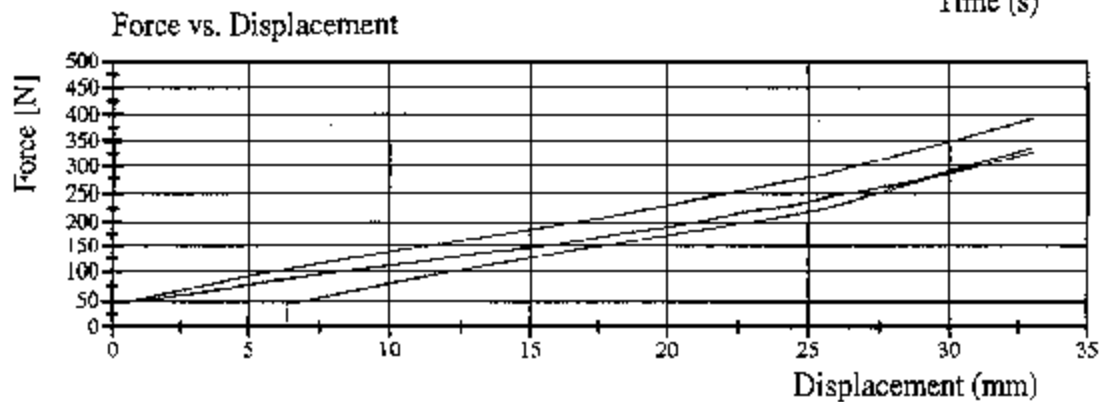
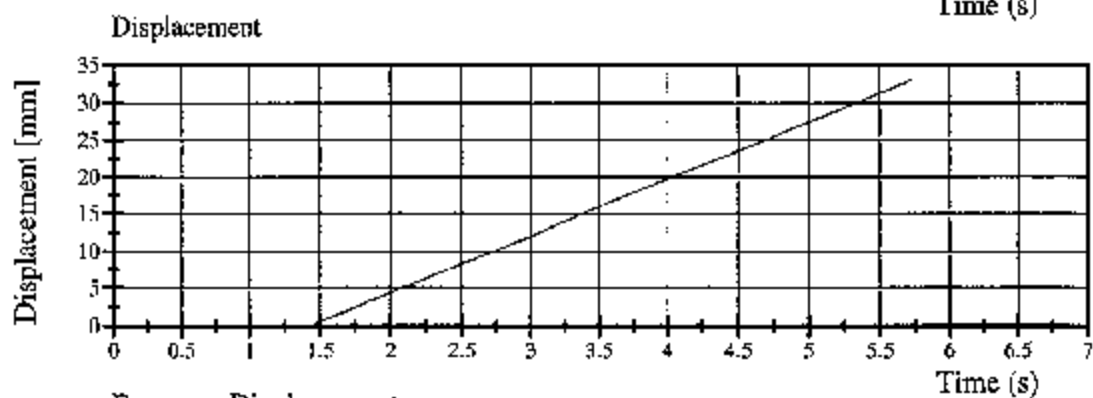
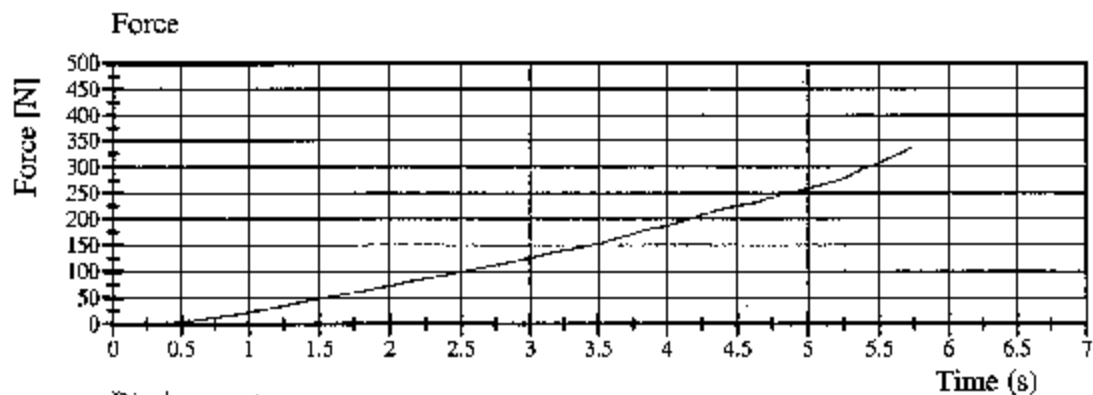


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003



01/30/2003 15:18:25 9



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

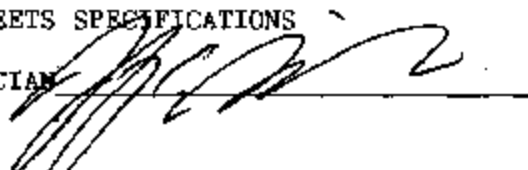
TEST NO: SPL06602

572F SN066 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.8 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.1 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020403.1358;1

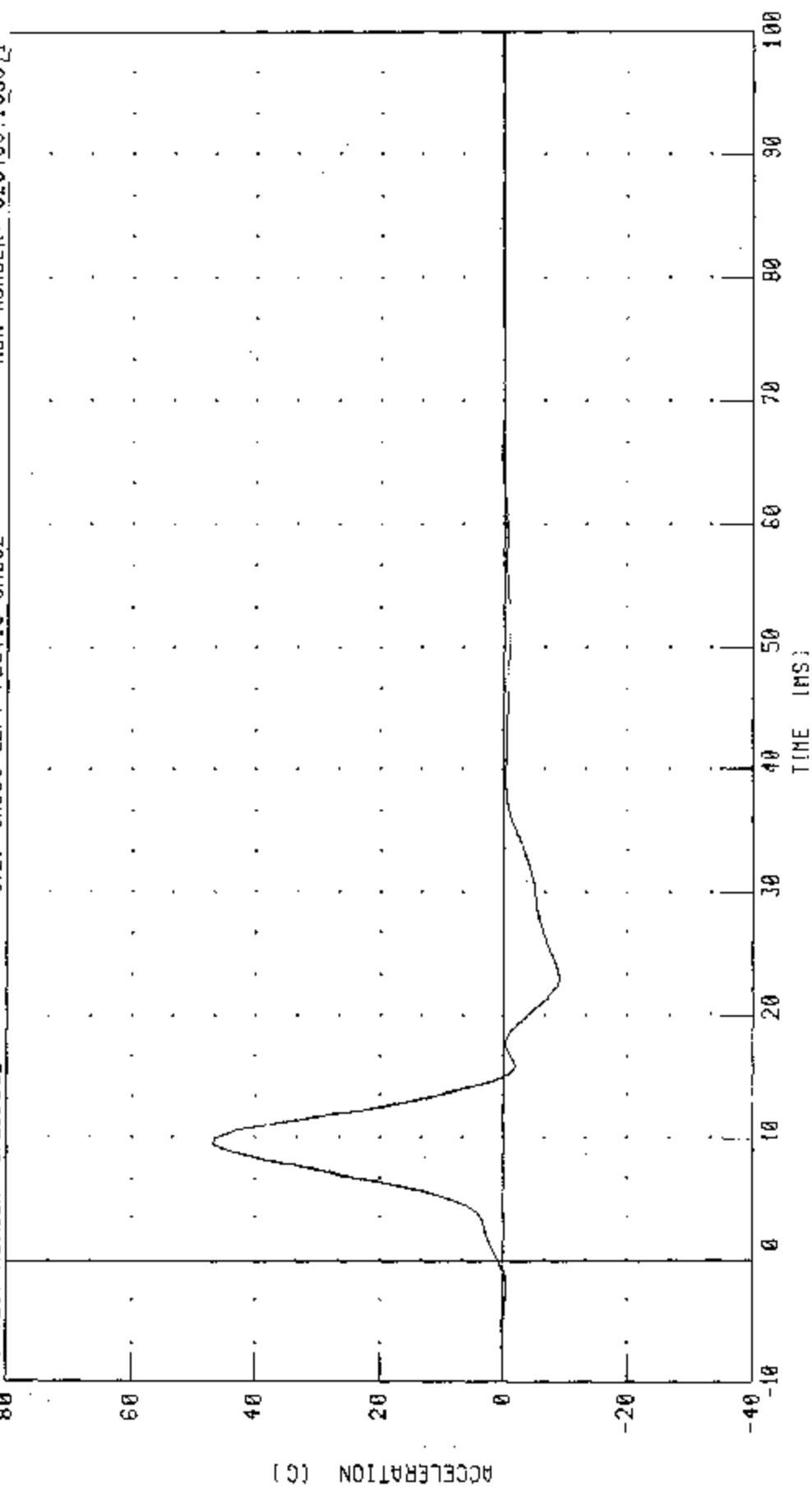
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06602

572F SN066 LEFT PELVIS CAL02

RUN NUMBER: 020403.1350.1



TIME (MS)

CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 46.84 G @ 9.37 MS, -9.03 G @ 23.13 MS

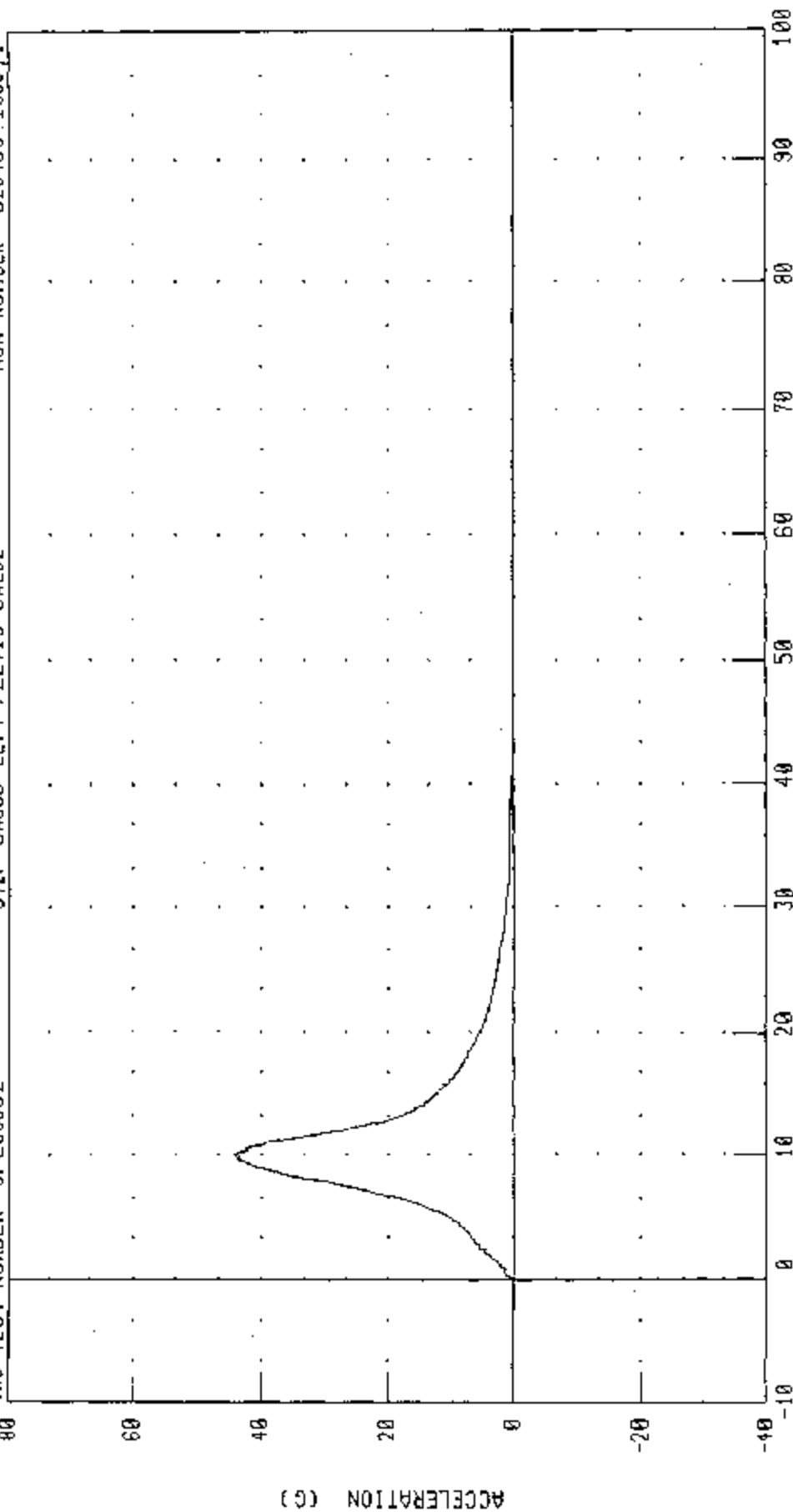
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENULUM DECELERATION

572F SN06S LEFT PELVIS CAL02

RUN NUMBER 020403.1358.1

TRC TEST NUMBER SPL06602



TIME (MS)

CHANNEL: PENXC FILTER: C-1 CLASS 1000

PEAK DATA: 44.12 G @ 10.16 MS; -0.22 G @ 61.36 MS

Calibration Test Results

Post-Test

STD: 065


Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber was not retested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

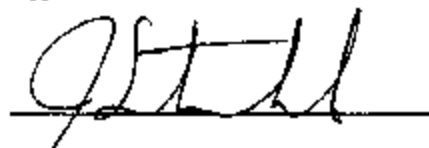
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	515 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	237 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	No

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

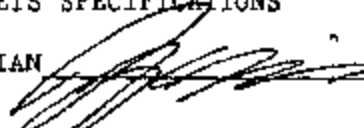
TRC INC.

TEST NO: STL06503

572F SID SN065 L.THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	42.3 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	19.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.1048;1

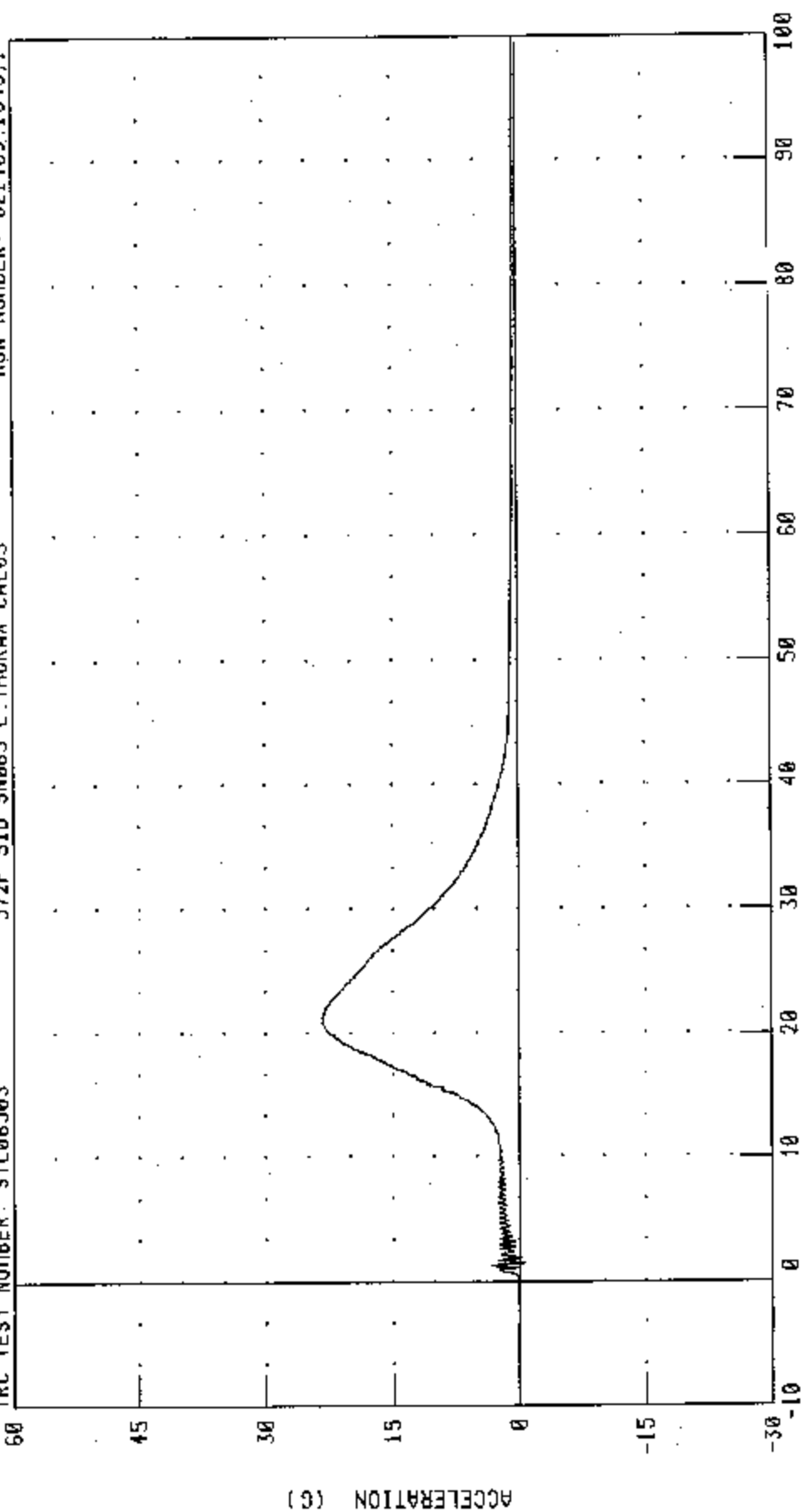
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENOVULUM DECELERATION

TRC TEST NUMBER: STL06503

572F SID SN065 L THORAX CAL03

RUN NUMBER: 021403.1049.1



TIME (MS)

PEAK DATA: 23 32 G @ 21.28 MS; -0.53 G @ 1.52 MS

CHANNEL: PENXG FILTER: CH. CLASS 1000

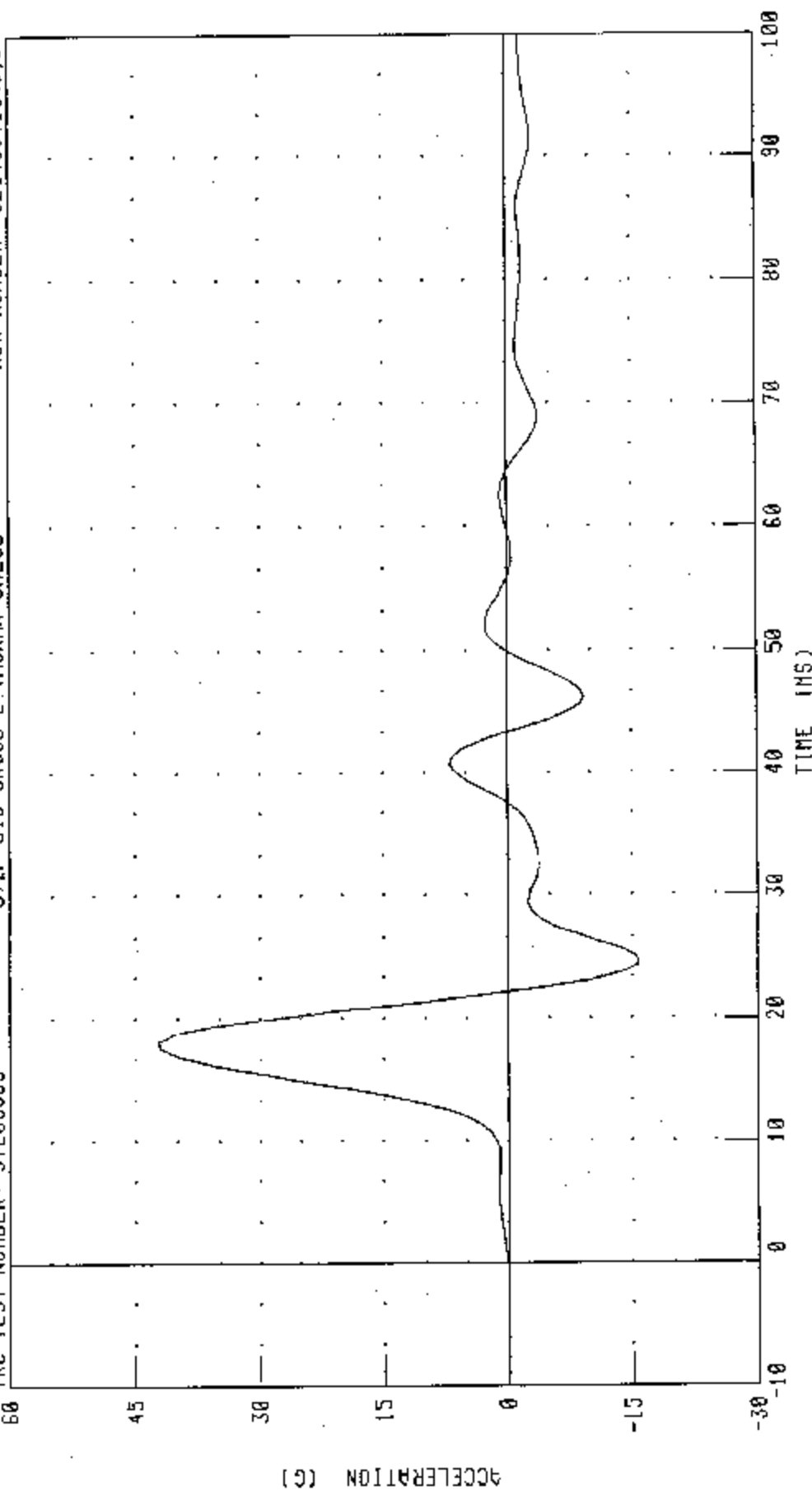
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SN085 L THORAX CAL03

RUN NUMBER: 021403 1049,1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 42.26 G @ 18.13 MS; -15.75 G @ 24.38 MS

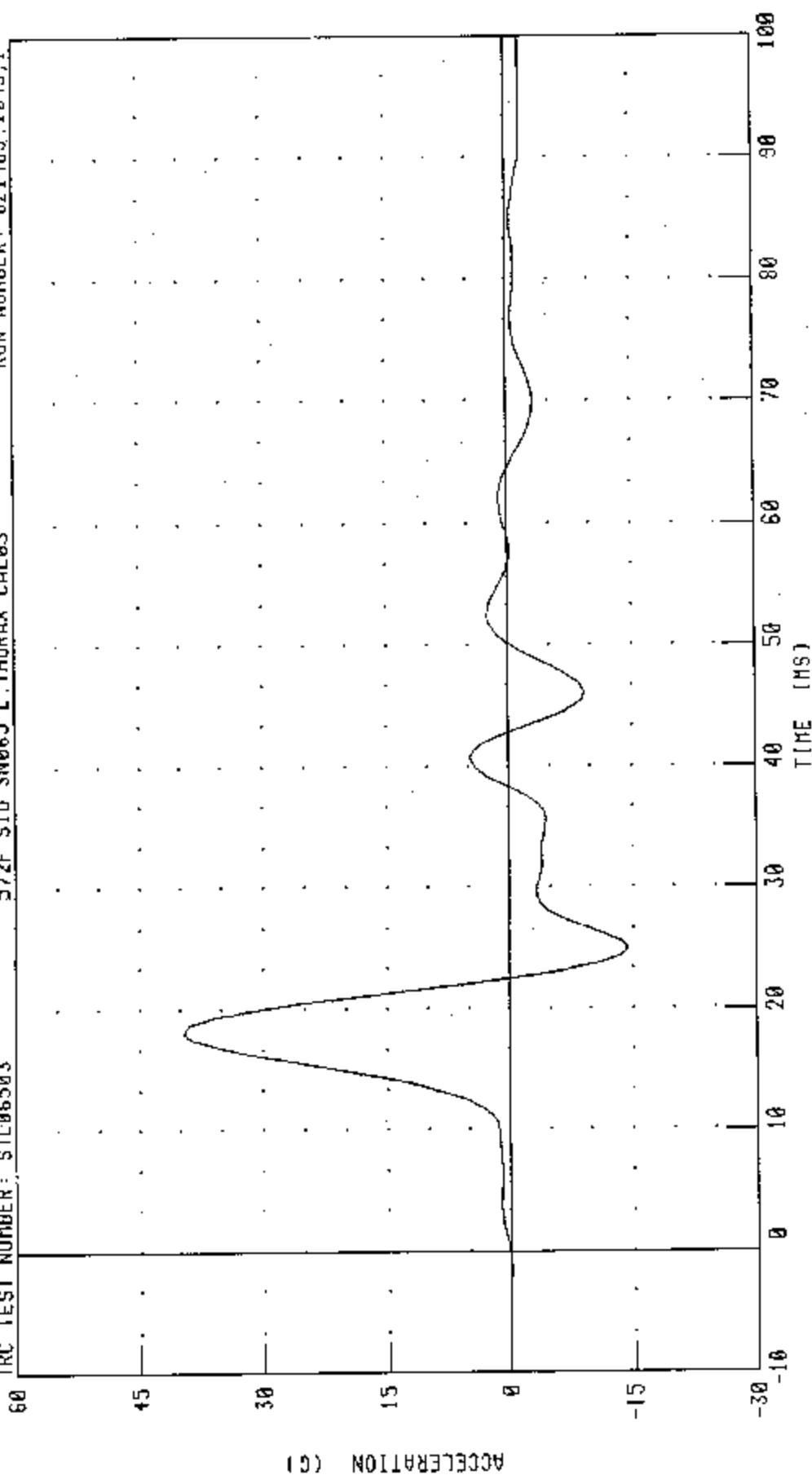
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SN065 L THORAX CAL03

RUN NUMBER: 021403.1049.1



CHANNEL: LLRYG FILTER FIR 100

PEAK DATA: 39.53 G @ 18.13 MS, -14.45 G @ 25.00 MS

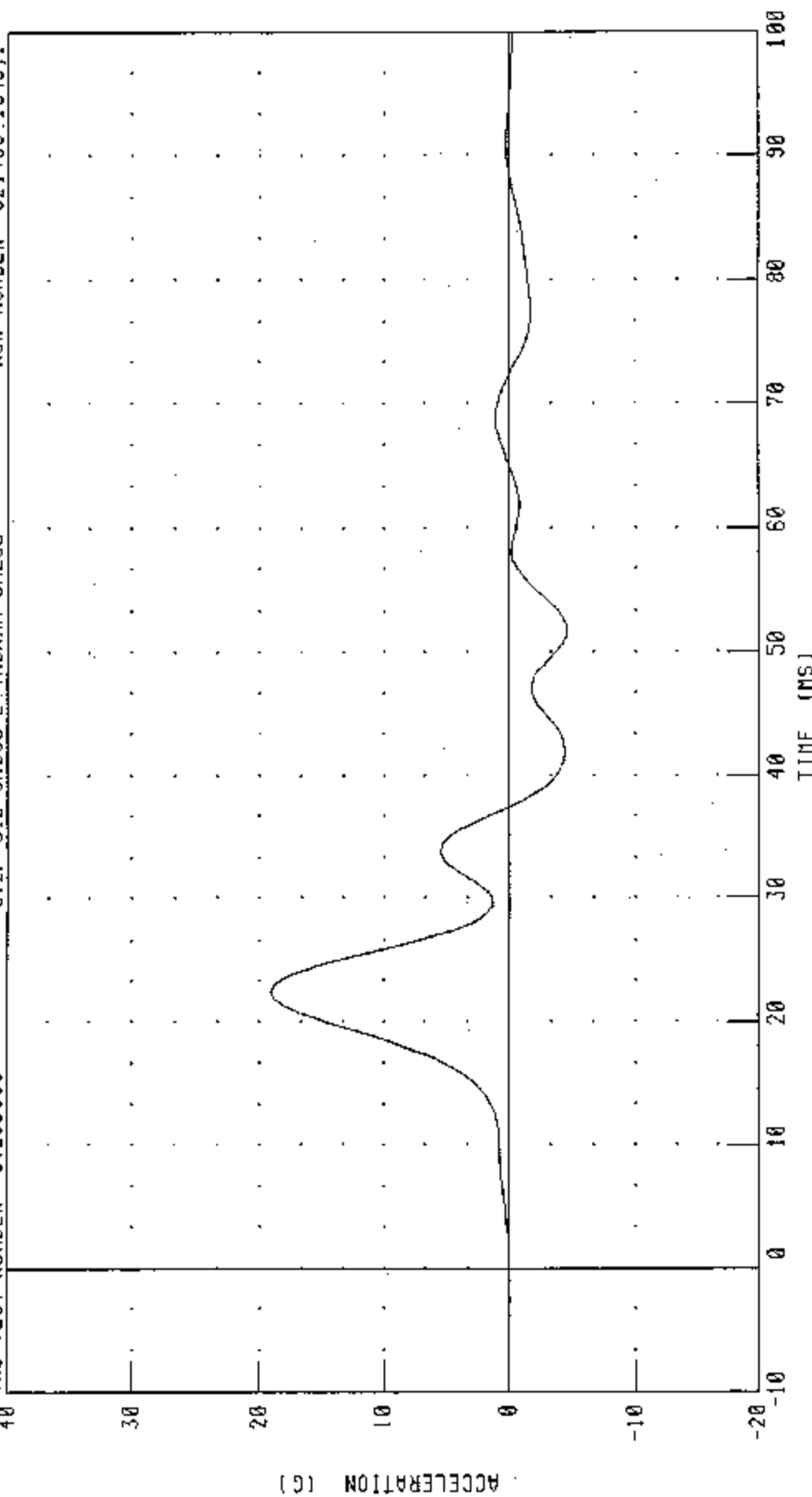
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SN065 L THORAX CAL03

RUN NUMBER: 021403.1049,1



CHANNEL: TL2YC FILTER: FIR 100

PEAK DATA: 19 14 6 @ 22 50 MS, -4 61 6 @ 51 88 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 14-Feb-03

TRC, INC.

TEST NO: 065C03LF1

572B SN 065 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	142.3 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	186.8 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	240.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003

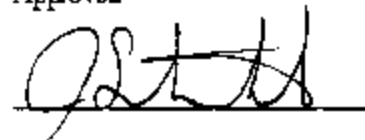
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.0 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



02.14.2003 12:51:30 21

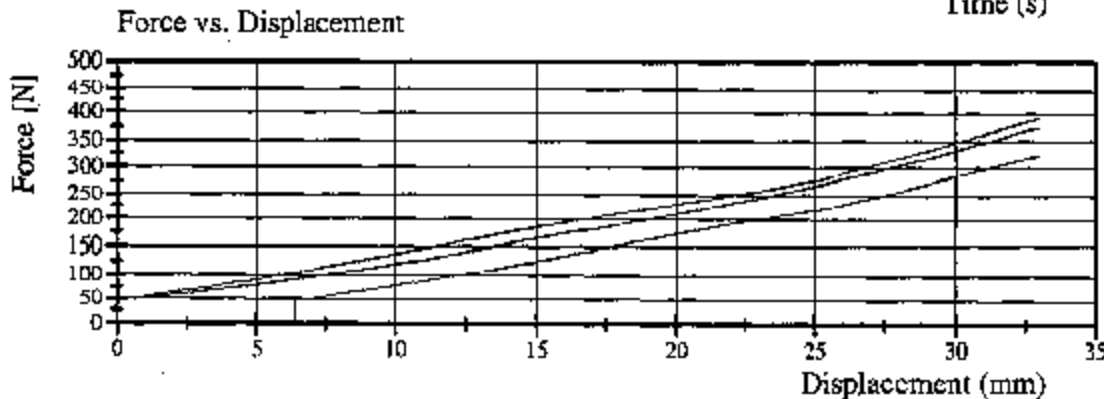
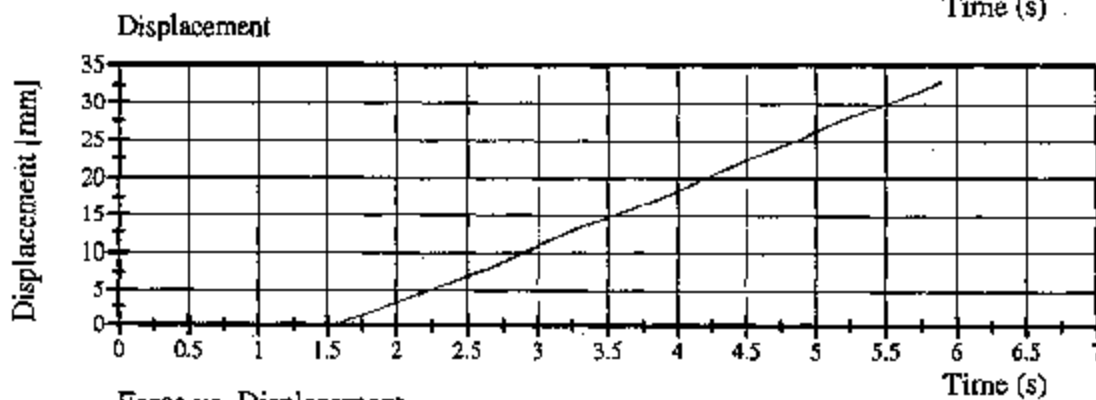
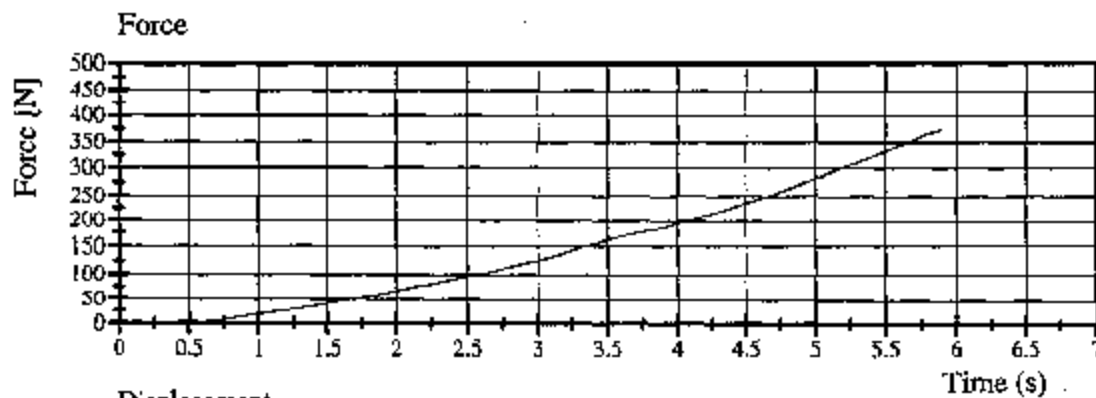


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 12:51:32 21



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

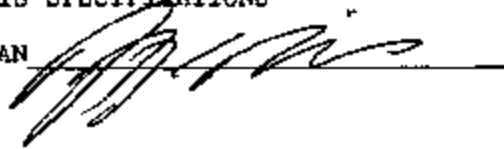
TEST NO: SPL06503

572F SN065 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 021403.1031;1

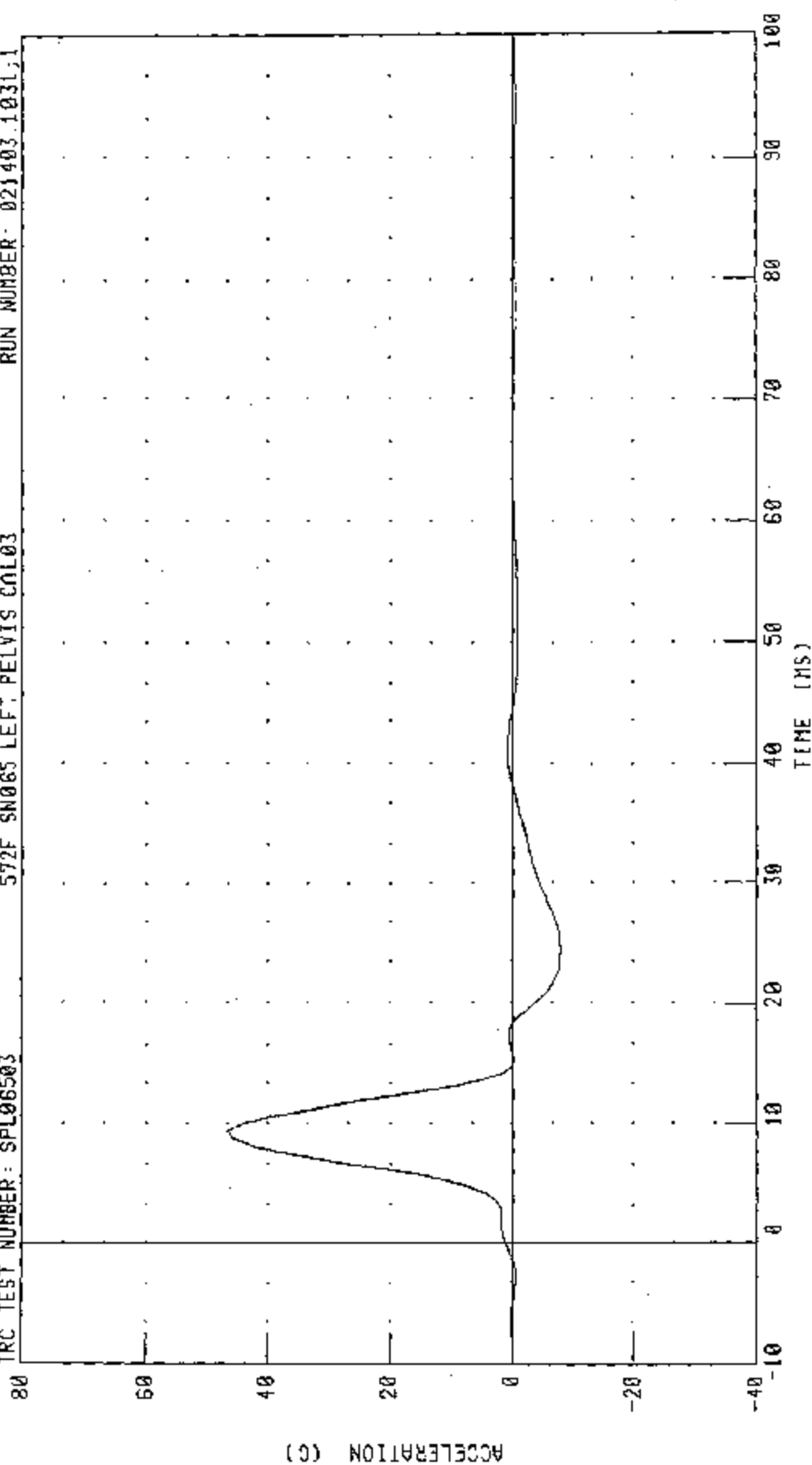
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

IRC TEST NUMBER: SPL06503

572F SN065 LEFT PELVIS COL03

RUN NUMBER: 021403.103L;1



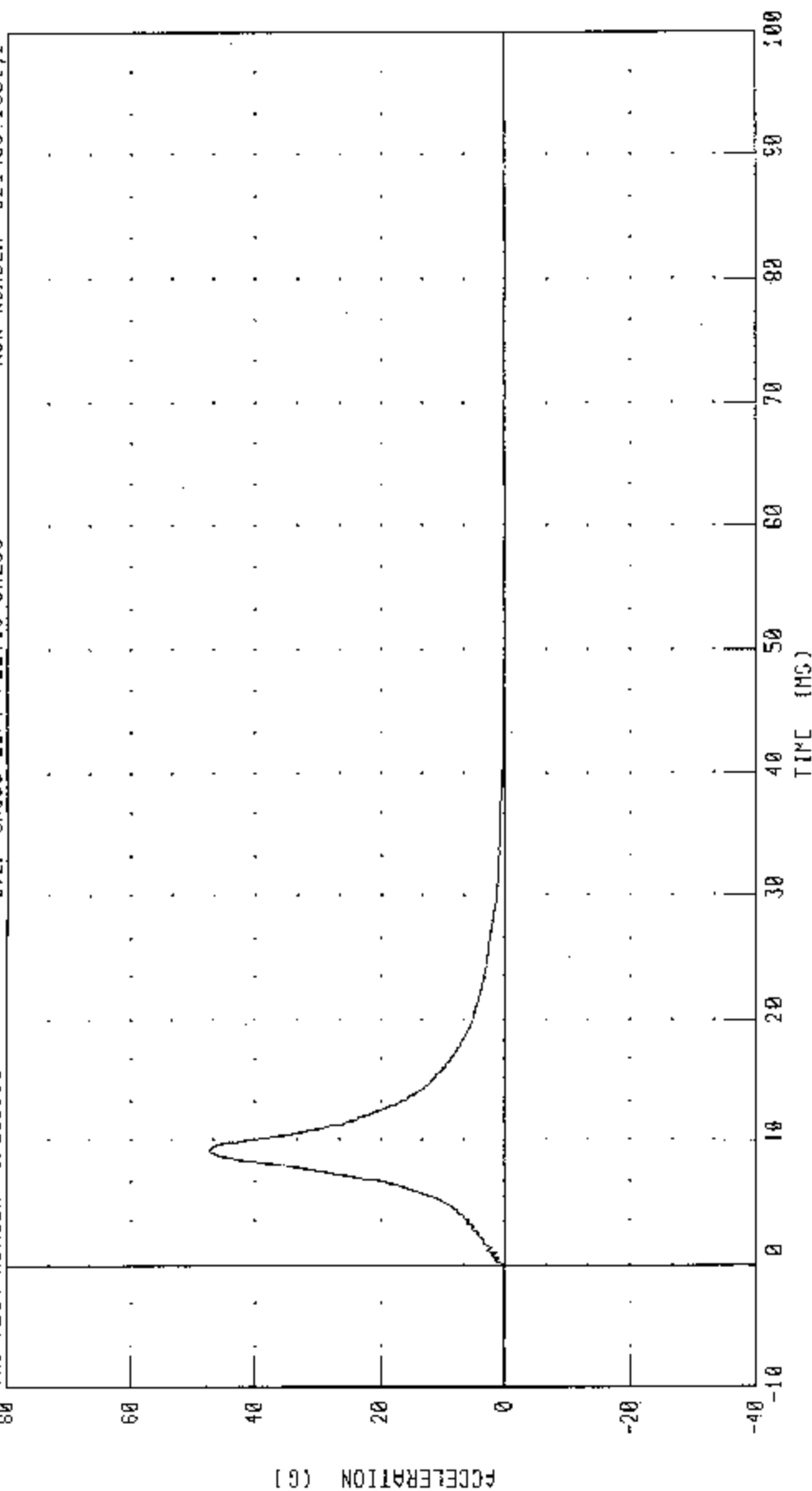
CIRCUIT: PEVYC FILTER: FIR 100

PEAK DATA: 46.63 G @ 9.37 MS; -8.12 G @ 24.38 MS

PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06503 572F 5M065 LEFT PELVIS CAL03 RUN NUMBER: 021403.1031.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 17.36 G @ 9.20 MS, -0.17 G @ 70.50 MS

Calibration Test Results

Post-Test

SID: 066

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber was not retested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

Transportation Research Center Inc.

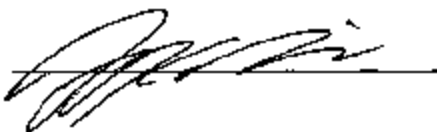
572F SID Dummy

External Dimensions

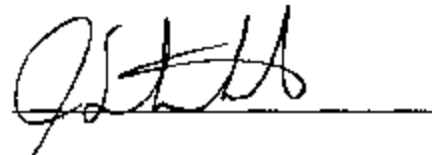
Serial No. 066 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	896 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	521 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	388 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	236 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		≤ 2.5 mm	0.0 mm	Yes

Technician



Approved




TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: STLO6603

572F SID SN066 L.THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.9 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.9 G

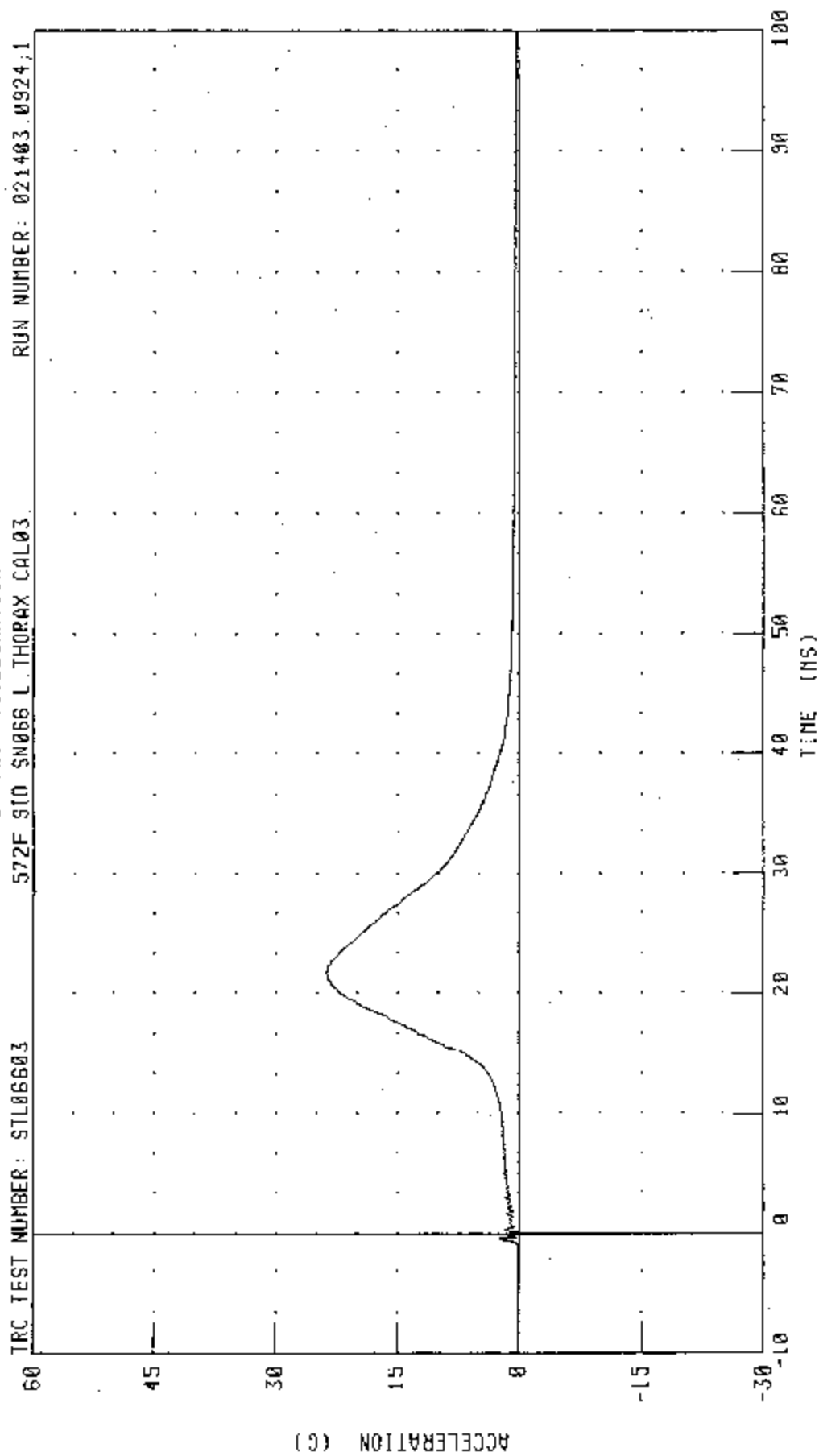
TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.0924;1

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION



CHANNEL PENXG FILTER: CH. CLASS 1000

PEAK DATA: 23.81 G @ 23.81 MS, 0.00 G @ -4.40 MS

TRC TEST NUMBER: STL06603

572F S10 SN066 L THORAX CAL03

RUN NUMBER: 021403.0924.1

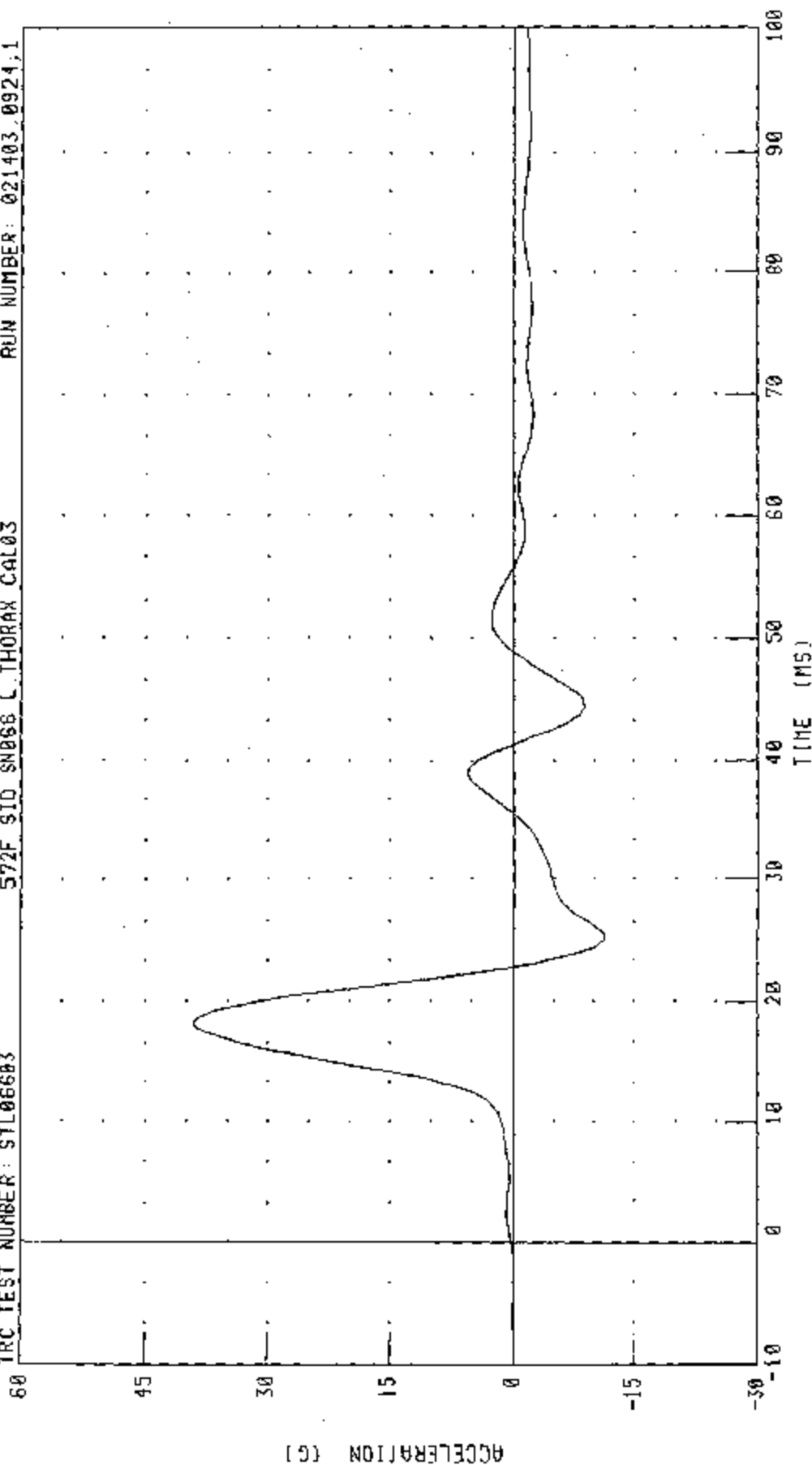
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: SYL06603

572F SID SN066 L THORAX CAL03

RUN NUMBER: 021403.0924,1



TIME (MS)

CHANNEL: LURYG FILTER: FIR100

PEAK DATA: 39.22 G @ 18.13 MS; -11.24 G @ 25.00 MS

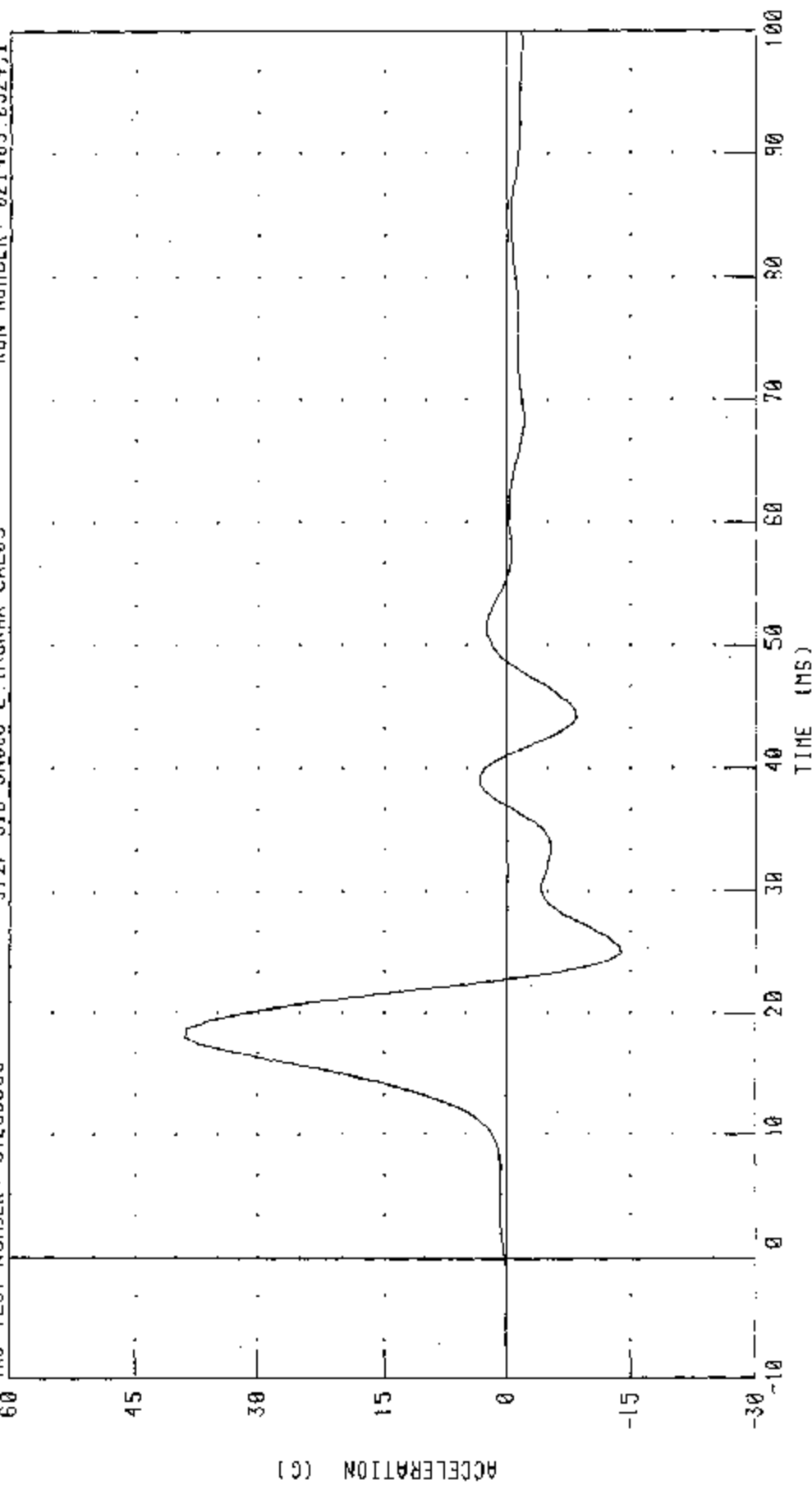
PART 572-F S I D THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06603

572F SID SN066 L THORAX CAL03

RUN NUMBER: 021403.8924.1



PEAK DATA: 38.89 C @ 18.13 MS, -13.89 C @ 25.00 MS

CHANNEL: LLRYC FILTER: FIR 100

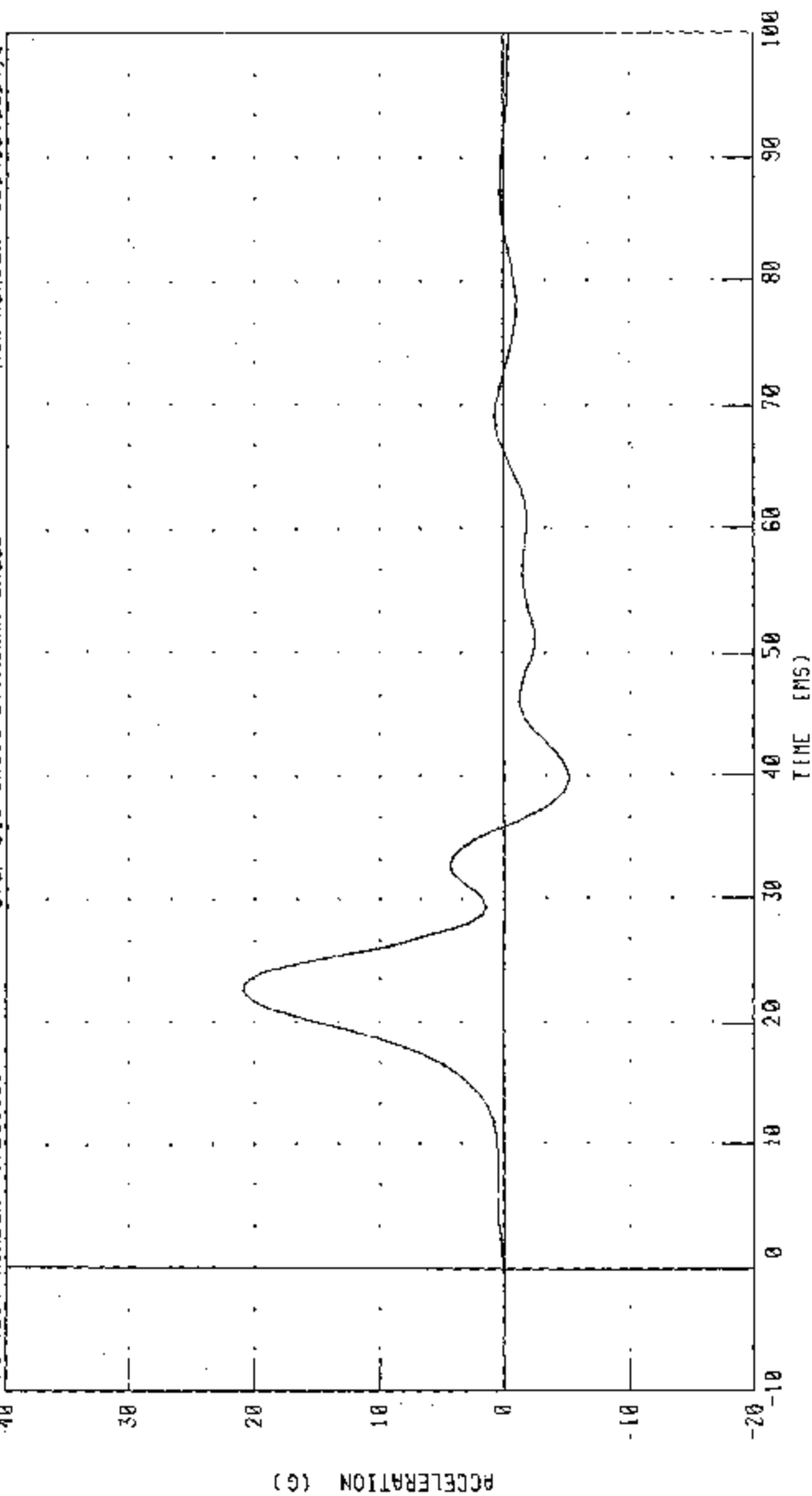
PART 572-F G.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: ST108583

572F SID SN066 L THORAX CAL03

RUN NUMBER: 021403.0924.1



PEAK DATA: 20.00 G @ 22.50 MS; -5.17 G @ 40.00 MS

FILTER: FIR 100

CHANNEL: T12YC

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 14-Feb-03

TRC, INC.

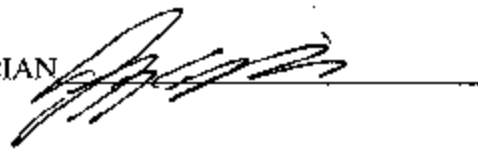
TEST NO: LF06603

572B SN 066 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	124.6 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	244.7 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



02.14.2003 13:52:30 12

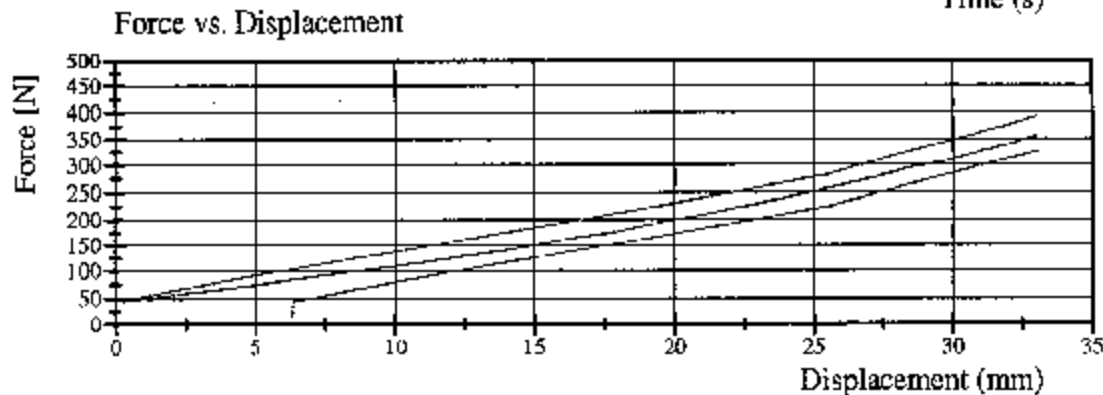
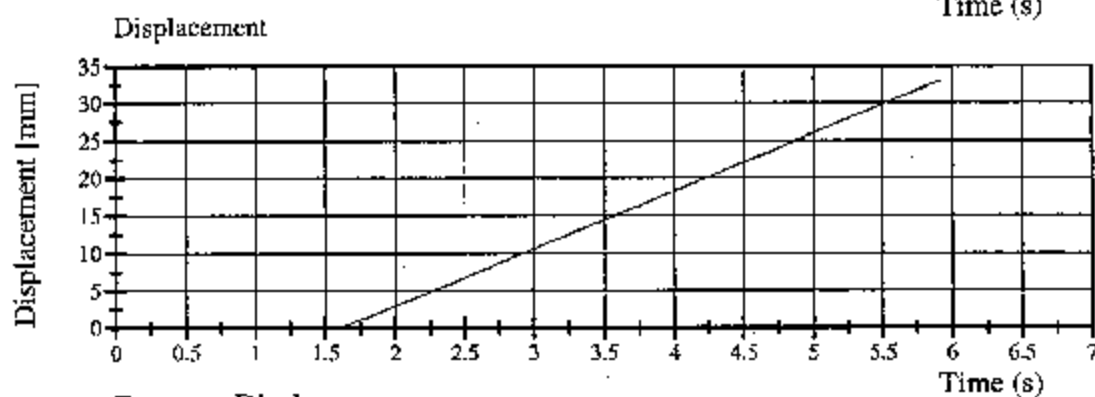
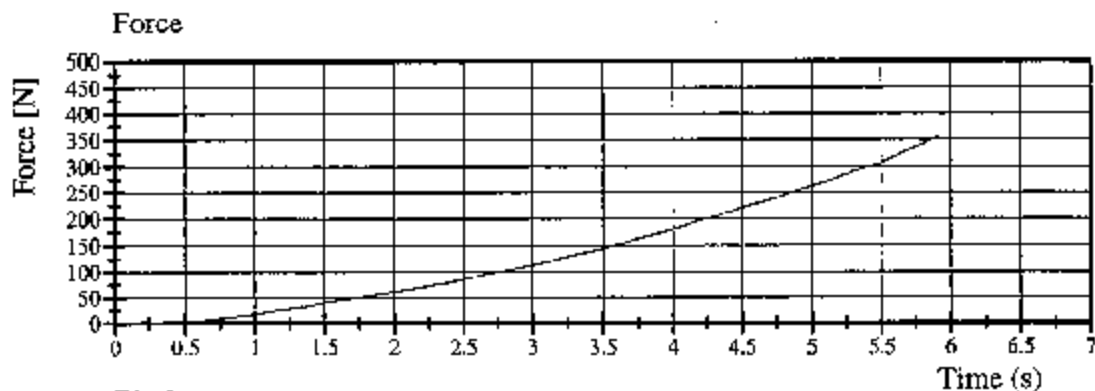
TRE

Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 13:52:31 12



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

TEST NO: SPL06603

572F SN066 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	52.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.0929;1

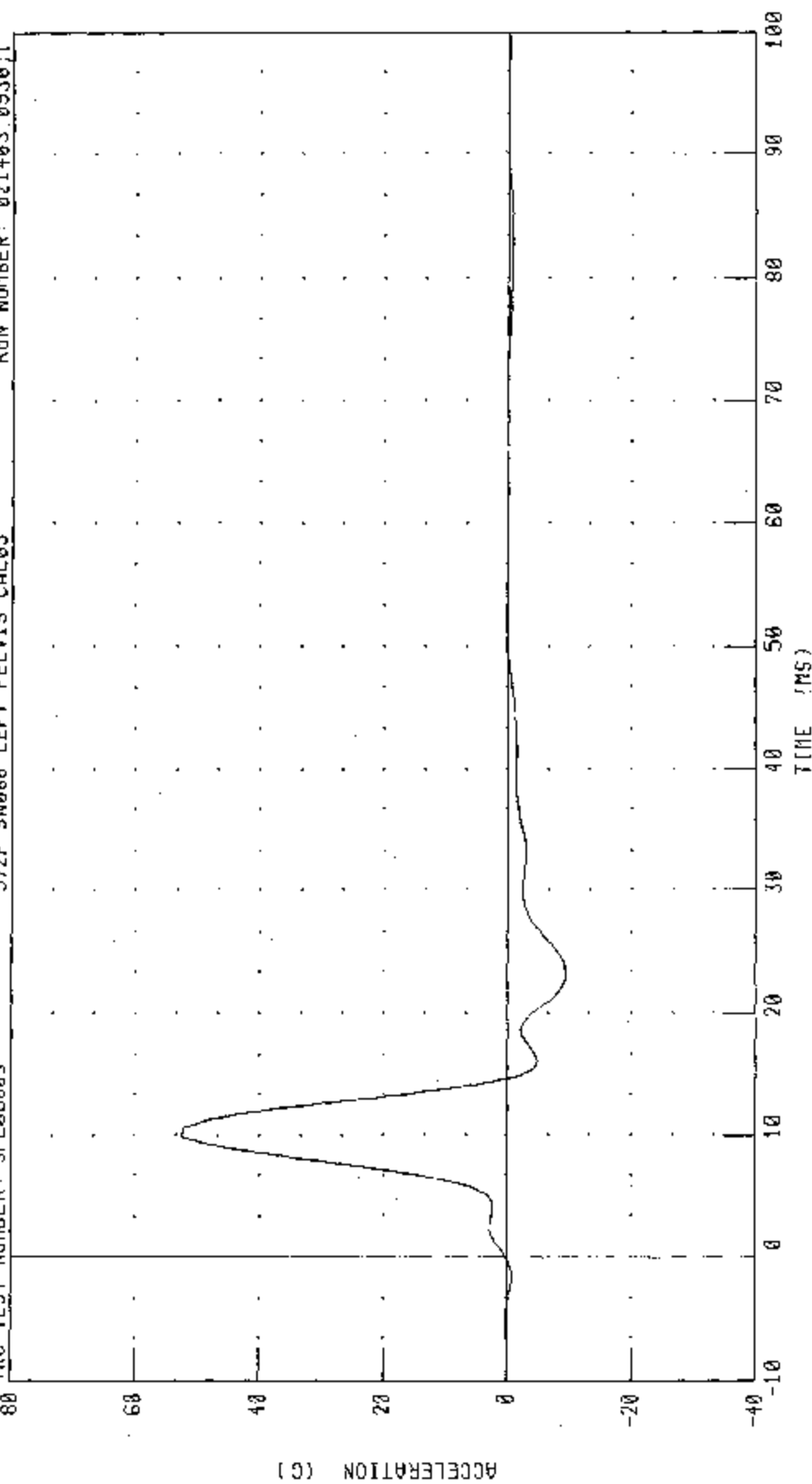
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06603

572F SN066 LEFT PELVIS CAL03

RUN NUMBER: 021403.0930.1



CHANNEL: PEVYC FILTER: FIR 100

PEAK DATA: 52.49 G @ 10.00 MS, -9.46 G @ 23.13 MS

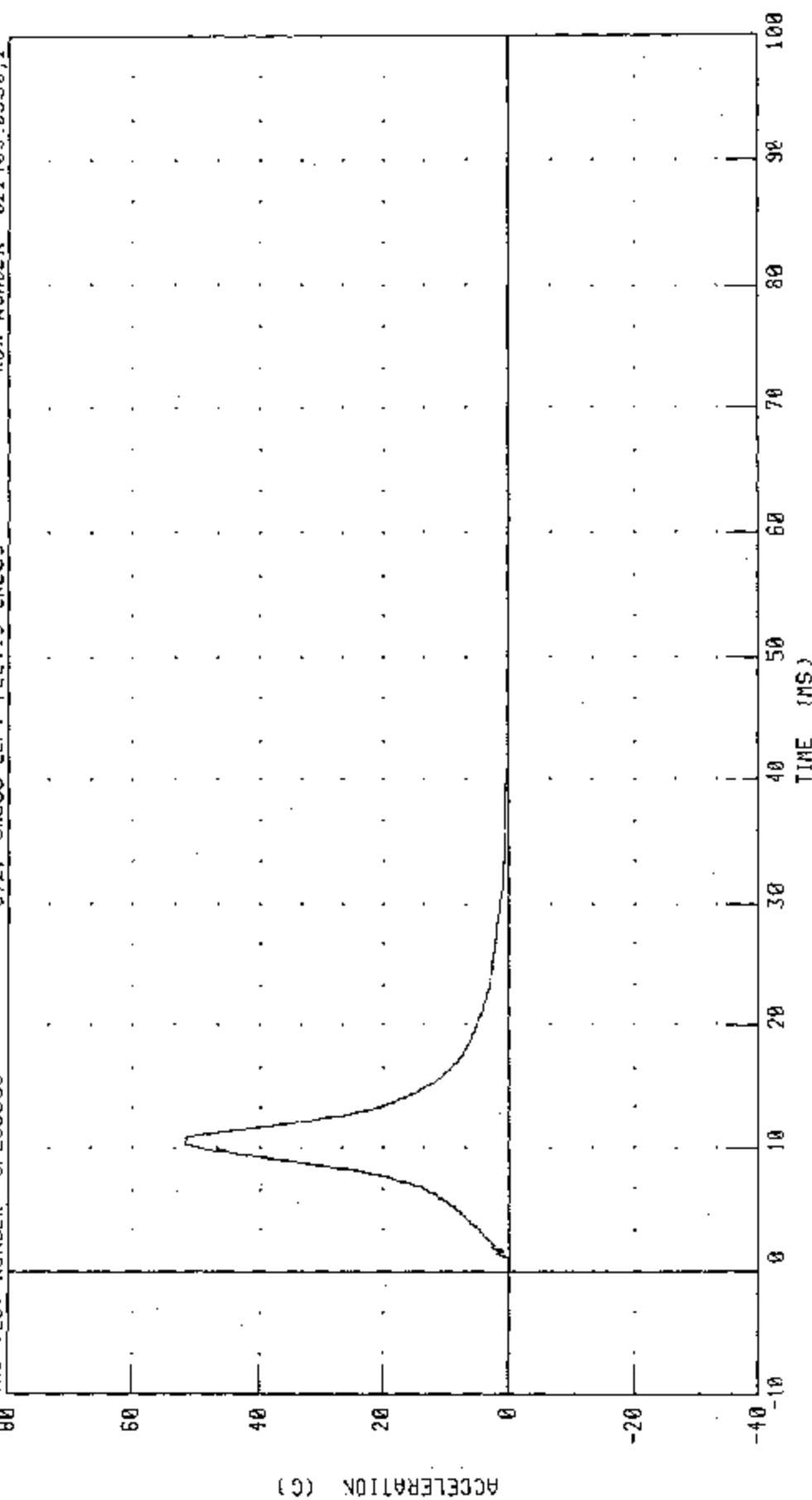
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06603

572F SN066 LEFT PELVIS CAL03

RUN NUMBER: 021403.0930.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 51 84 0 10.48 MS, -0.15 G @ 62.64 MS

Transportation Research Center Inc.

SID Pre-Use Inspection

Type: DOT SID S/N: 065Mfr: DentonTest Date: 02/12/03Proj./Seg. No.: 20020455/0100Test Eng.: Virginia Watters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) X
NECK:		
Rubber Condition and Separation from End Caps	X	
THORAX:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: John ClarridgeDate: 02/11/03

Type: DOT SID S/N: 066Mfr: DentonTest Date: 02/12/03Proj./Seg. No.: 20020455/0100Test Eng.: Virginia Walters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition		
Accel. Mount Bolts and Cables		
Skull Cap Bolts	X	
Head Skin Condition		
Accel. Cable Exit (left or right)	(Left)	(Right) X
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:	X	
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: John ClarridgeDate: 02/11/03

TRANSPORTATION RESEARCH CENTER INC.

SID Post-Use Inspection

S/N: DOT 065

Mfg: Denton

Test Date: 2/12/03

Proj./Seg. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	POST-USE
HEAD: Driver	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

Inspection Completed By: John Clarridge

Date: 2/13/03

TRANSPORTATION RESEARCH CENTER INC.

SID Post-Use Inspection

S/N: DOT 066Mfg: DentonTest Date: 2/12/03Proj./Seg. No.: 20020455/0100Test Eng.: Virginia Watters

ITEM	POST-USE
HEAD: Passenger	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.Inspection Completed By: John ClarridgeDate: 2/13/03

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia
increased (in relation to a seated
dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention, Cont'd.
SAE J211 MAR95

Lumbar load cells:

+X force:	Chest rearward, pelvis forward
-Y force:	Chest leftward, pelvis rightward
+Z force:	Chest upward, pelvis downward
+X moment:	Left shoulder toward left hip
+Y moment:	Sternum toward front of legs
+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report; occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

2/12/2003 10:52:49 AM

Channel Report

Name of Test 030212-1

System MINIDAU

Name of DAU DAU6

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal	Group	Mfg.	Model
6001	P25322	RCGXG1	MDB CENTER OF GRAVITY	FWD	597.57236 g	+ 1/22/2003	OK	Endevco	7264C-2K-2-180
6002	P24561	BCGYG1	MDB CENTER OF GRAVITY	RT	596.73659 g	+ 11/22/2002	OK	Endevco	7264C-2K-2-180
6003	P24531	BCGZG1	MDB CENTER OF GRAVITY	UP	593.27238 g	- 11/21/2002	OK	Endevco	7264C-2K-2-180
6007	P23929	LRRXG1	MDB LT RR X-AXIS	FWD	594.43024 g	+ 9/4/2002	OK	Endevco	7264C-2K-2-180
6008	P24590	LRRYG1	MDB LT RR Y-AXIS	LT	601.61684 g	- 11/21/2002	OK	Endevco	7264C-2K-2-180

Channel Report

2/12/2003 10:52:49 AM

Name of Test		030212-1		System		MINIDAU		Name of DAU		DAU7	
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal.	Group	Mfg.	Model		
7001	P25068	LURYG1	Left Upper Rib Y	Rgt	804.05798	+	OK	Endevco	7264C-2K-2-180		
7002	P25067	LURYR1	Left Upper Rib Red Y	Rgt	808.88509	+	OK	Endevco	7264C-2K-2-180		
7003	P25389	LJRYG1	Left Lower Rib Y	Rgt	799.52528	+	OK	Endevco	7264C-2K-2-180		
7004	P25395	LLRYR1	Left Lower Rib Red Y	Rgt	788.95463	+	OK	Endevco	7264C-2K-2-180		
7005	P14826	T12YG1	Lower Spine Y	Lft	401.80813	-	OK	Endevco	7264C-2K-2-180		
7006	P25069	T12YR1	Lower Spine Red Y	Lft	398.15851	-	OK	Endevco	7264C-2K-2-180		
7007	P25397	PEVYG1	Pelvis Accel Y	Lft	400.34404	-	OK	Endevco	7264C-2K-2-180		
7008	P25061	PEVYR1	Pelvis Accel Red Y	Lft	401.07161	-	OK	Endevco	7264C-2K-2-180		
7009	P24511	LURYG4	Left Upper Rib Y	Rgt	799.87501	+	OK	Endevco	7264C-2K-2-180		
7010	P21652	LURYR4	Left Upper Rib Red Y	Rgt	803.23805	+	OK	Endevco	7264C-2K-2-180		
7011	P24508	LJRYG4	Left Lower Rib Y	Rgt	803.12465	+	OK	Endevco	7264C-2K-2-180		
7012	P24827	LLRYR4	Left Lower Rib Red Y	Rgt	801.56555	+	OK	Endevco	7264C-2K-2-180		
7013	P21635	T12YG4	Lower Spine Y	Lft	401.99742	-	OK	Endevco	7264C-2K-2-180		
7014	P24564	T12YR4	Lower Spine Red Y	Lft	401.56862	-	OK	Endevco	7264C-2K-2-180		
7015	P24393	PEVYG4	Pelvis Accel Y	Lft	401.26964	-	OK	Endevco	7264C-2K-2-180		
7016	P24559	PEVYR4	Pelvis Accel Red Y	Lft	402.26272	-	OK	Endevco	7264C-2K-2-180		
7017	P25265	RPSXG1	RGT SIDE SILL FRNT ST X	RR	401.31367	-	OK	Endevco	7264C-2K-2-180		
7018	P19123	RFSYG1	RGT SIDE SILL FRNT ST Y	Lt	1006.1706	-	OK	Endevco	7264C-2K-2-180		
7019	P24566	RFSZG1	RGT SIDE SILL FRNT ST Z	UP	401.33254	-	OK	Endevco	7264C-2K-2-180		
7020	P25495	RRSXG1	RGT SIDE SILL RR ST X	RR	400.45363	-	OK	Endevco	7264C-2K-2-180		
7021	P24444	RRSYG1	RGT SIDE SILL RR ST Y	LT	991.30670	-	OK	Endevco	7264C-2K-2-180		
7022	P24480	RRSZG1	RGT SIDE SILL RR ST Z	UP	401.51824	-	OK	Endevco	7264C-2K-2-180		
7023	P24592	RDKXG1	RR FLR PAN ABV AXLE X	FWD	1012.3378	+	OK	Endevco	7264C-2K-2-180		
7024	P24716	RDKYG1	RR FLR PAN ABV AXLE Y	RT	1012.9787	+	OK	Endevco	7264C-2K-2-180		
7025	P24717	RDKZG1	RR FLR PAN ABV AXLE Z	UP	1004.9264	-	OK	Endevco	7264C-2K-2-180		
7026	P24543	LRSYG1	LFT SIDE SILL RR ST Y	RT	984.12352	+	OK	Endevco	7264C-2K-2-180		
7027	P25311	LPSYG1	LFT SIDE SILL FRNT ST Y	RT	1021.1408	+	OK	Endevco	7264C-2K-2-180		
7028	P25393	LPCYG1	LFT FRNT DOOR CTRLN Y	RT	1502.3474	-	OK	Endevco	7264C-2K-2-180		
7029	P24580	RRTYG1	RGT RR OXP COMP Y	RT	1493.9309	+	OK	Endevco	7264C-2K-2-180		
7030	P25405	LRMYG1	LFT FRNT DOOR MIDRR Y	RT	1511.2160	+	OK	Endevco	7264C-2K-2-180		
7031	P25056	LFUYG1	LFT FRNT DOOR UPPER C/L	RT	1530.9173	+	OK	Endevco	7264C-2K-2-180		
7032	P25303	LRMYG1	LFT RR DORR MIDREAR Y	RT	1483.0263	+	OK	Endevco	7264C-2K-2-180		

Channel Report

2/12/2003 10:52:49 AM

Name of Test		030212-1		System		MINIDAU		Name of DAU		DAU8	
Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model	
8001	P24434	LROYG1	LT RR DR UPPER CL Y	RT	1523.8095 g	+	11/22/2002	OK	-1	Endevco	
8002	318104	LIBYG1	LFT LOWER B-POST Y	RT	1508.4111 g	+	11/5/2002	OK	-1	Endevco	
8003	P24515	LUBYG1	LFT MID B-POST Y	RT	1485.7375 g	+	11/21/2002	OK	-1	Endevco	
8004	P25321	LLAYG1	LFT LOWER A-POST Y	LT	1457.7757 g	-	1/22/2003	OK	-1	Endevco	
8005	P24389	LUAYG1	LFT MID A-POST Y	LT	1475.8445 g	-	11/21/2002	OK	-1	Endevco	
8006	J20025	LFTYG1	LFT FRNT ST TRK Y	RT	1479.4267 g	+	12/3/2002	OK	-1	Endevco	
8007	P24648	LRTYG1	LFT RR ST TR Y	LT	1467.0066 g	-	11/20/2002	OK	-1	Endevco	
8008	P25329	VCGXG1	VEH C/G X	FWD	995.95393 g	+	1/22/2003	OK	-1	Endevco	
8009	P24652	VCGYG1	VEH C/G Y	LT	995.21828 g	-	11/20/2002	OK	-1	Endevco	
8010	P23848	VCGZG1	VEH C/G Z	UP	1000.8601 g	-	8/16/2002	OK	-1	Endevco	

Digital and System Channel Report

2003-02-12 10:52:35

Name of Test 030212-1
 enable Channel
 Yes 6501
 Name of DAU DAU6
 Data File DAT66501
 Module Type KM3710 Controller
 System MINIDAU
 Type dig0
 description

bit position	bit	short	long	description
MSB = bit 15	1	MDBR1		
bit 14	1			
bit 13	0	MDBL1		
bit 12	0			
bit 11	0			
bit 10	0			
bit 09	0			
bit 08	0			
bit 07	0			
bit 06	0			
bit 05	0			
bit 04	0			
bit 03	0			
bit 02	0			
bit 01	0			
bit 00	0			
LSB = bit 00	0			

Dummy 065n Type STD Description NHTSA - 065n SID-LEFT IMP. CONFIG. CAL DUE 6-19-03 (DKS 2-5-03)J211

Chsname	Location	Model	Name	Manufacturer	Sens./mV/V/U	Fullscale	Caldate	Pos Output	Flip
IHEDXG	Head Accel X	7264-2000TZ	J26885	Endevco	0.02369	g 2000	7/1/02	Rwd	1
IHEDYG	Head Accel Y	7264-2000TZ	J26864	Endevco	0.02404	g 2000	7/1/02	Lft	1
IHEDZG	Head Accel Z	7264-2000TZ	J27950	Endevco	0.02593	g 2000	7/1/02	Up	1
INEKXF	Neck Force X	1716A	1716A-858-FX	Denton	0.000191628	N 8896.4	1/1/03	Rd Fd,Cst Rr	1
INEKYF	Neck Force Y	1716A	1716A-858-FY	Denton	0.000184704	N 8896.4	1/1/03	Rd Ld,Cst Rt	0
INEKZF	Neck Force Z	1716A	1716A-858-FZ	Denton	0.000096421	N 13344.6	1/1/03	Rd Up,Cst Dh	0
INEKXM	Neck Moment X	1716A	1716A-858-MX	Denton	0.006005664	N-m 282.5	1/1/03	Rt Fst to Rt Shld	1
INEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005933097	N-m 282.5	1/1/03	Chn to Strum	0
INEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008454159	N-m 282.5	1/1/03	Chn to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P25068	Endevco	0.01721	g 2000	12/19/02	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P25067	Endevco	0.01623	g 2000	12/19/02	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P25389	Endevco	0.01642	g 2000	12/19/02	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25395	Endevco	0.02028	g 2000	12/19/02	Rgt	0
T12YG	Lower Spine Y	7264C-2K-2-18	P14826	Endevco	0.01991	g 2000	12/19/02	Lft	1
T12YR	Lower Spine Red Y	7264C-2K-2-18	P25069	Endevco	0.01692	g 2000	12/19/02	Lft	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P25397	Endevco	0.01827	g 2000	12/19/02	Lft	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P25061	Endevco	0.01798	g 2000	12/19/02	Lft	1

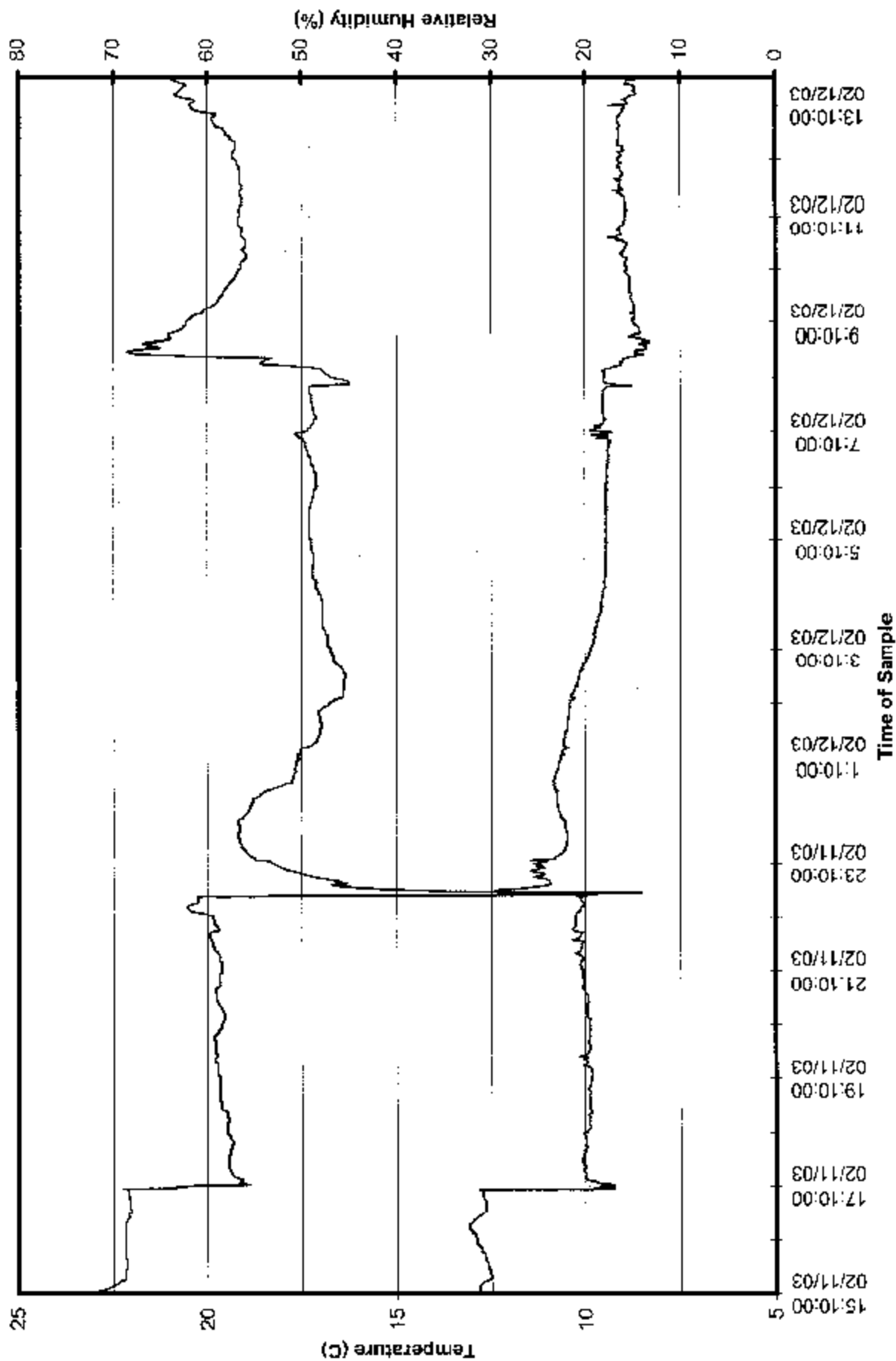
| indicates channel not used or not installed in dummy for this test.

NIHTSA - 066n SHU-LEFT IMP. CONFIG. CAL DUE 5-21-03(DKS 2-4-03)J211

Dummy	066n	Type	SID	Description	Name	Model	Manufacturer	Sens/mV/V/U	Fullscale	Calibrate	Pos Output	Fltp
IHEDXG	Head Accel X				J28754	7264-2000TZ	Endevco	0.02834	g	2000	7/10/02 Rwd	1
IHEDYG	Head Accel Y				J27345	7264-2000TZ	Endevco	0.02781	g	2000	7/11/02 Lft	1
IHEDZG	Head Accel Z				J27116	7264-2000TZ	Endevco	0.02547	g	2000	7/10/02 Up	1
INEKXP	Neck Force X				1716A	1716A-838-FX	Denton	0.000191628	N	8896.4	1/17/03 Hd Fd, Cst Rr	1
INEKYF	Neck Force Y				1716A	1716A-838-FY	Denton	0.000184704	N	8896.4	1/17/03 Hd L4, Cst Rl	0
INEKZF	Neck Force Z				1716A	1716A-838-FZ	Denton	0.000096421	N	13344.6	1/17/03 Hd Up, Cst Dn	0
INEKXM	Neck Moment X				1716A	1716A-838-MX	Denton	0.006005664	N m	282.5	1/17/03 Rt Ear to Rt Shld	1
INEKYM	Neck Moment Y				1716A	1716A-838-MY	Denton	0.003933097	N m	282.5	1/17/03 Chin to Shldr	0
INEKZM	Neck Moment Z				1716A	1716A-838-MZ	Denton	0.008454159	N m	282.5	1/17/03 Chin to Lt Shld	0
LURYG	Left Upper Rib Y				7264C-2K-2-18	P24511	Endevco	0.0173	g	2000	11/21/02 Rgt	0
LURYR	Left Upper Rib Red Y				7264C-2K-2-18	P21652	Endevco	0.02198	g	2000	11/21/02 Rgt	0
LLRYG	Left Lower Rib Y				7264C-2K-2-18	P24508	Endevco	0.01723	g	2000	11/21/02 Rgt	0
LLRYR	Left Lower Rib Red Y				7264C-2K-2-18	P24627	Endevco	0.01825	g	2000	11/21/02 Rgt	0
T12YG	Lower Spine Y				7264C-2K-2-18	P21635	Endevco	0.01873	g	2000	11/21/02 Lft	1
T12YR	Lower Spine Red Y				7264C-2K-2-18	P24564	Endevco	0.01875	g	2000	11/21/02 Lft	1
PEVYG	Pelvis Accel Y				7264C-2K-2-18	P24393	Endevco	0.01963	g	2000	11/21/02 Lft	1
PEVYR	Pelvis Accel Red Y				7264C-2K-2-18	P24559	Endevco	0.0172	g	2000	11/21/02 Lft	1

! Indicates channel not used or not installed in dummy for this test.

FMVSS 214 Side Impact Protection C35402 / 030212-1





SIDE IMPACTOR BARRIER CERTIFICATION

Date: July 11, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

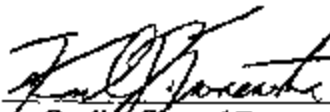
Customer P.O. Number: 018767
Work Order Number: 13552
Quantity: 05 pieces

CORE INFORMATION

Core Type: PAMG-3/8-1.6-001-P-5052-T
Measured Cell Size: 0.375 inches
Measured Density: 1.6 pcf

Unit Numbers: 050C0602 - 01 pc.
050A0602 - 01 pc.
049A0602 - 01 pc.
048C0602 - 01 pc.
035C0602 - 01 pc.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 45 psi +/- 2.5 psi as per DWG# DSL-1285.

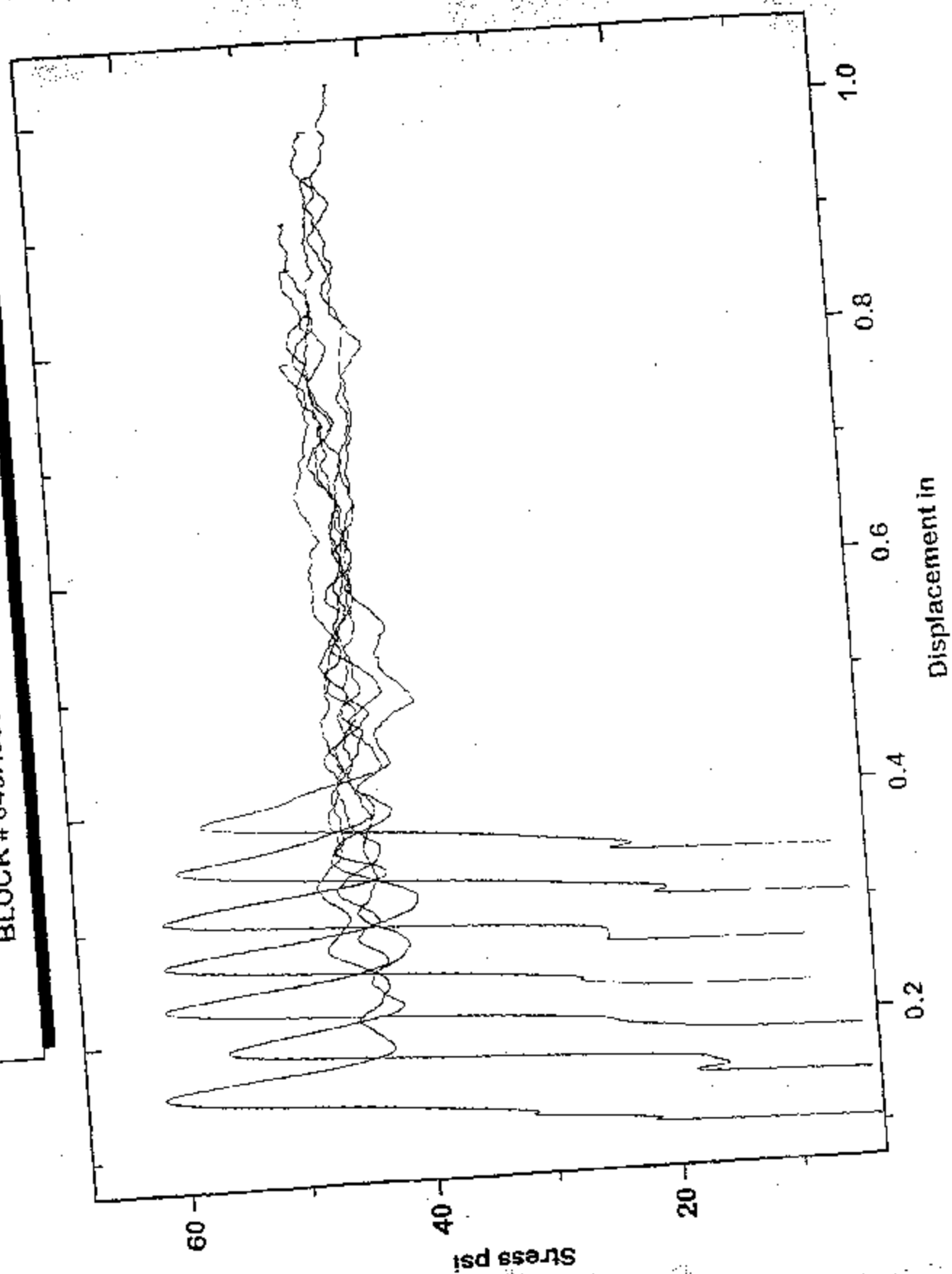

Quality Control Representative
Karl D. Zwaanstra



Crush Data**45 psi +/- 2.5 psi per DWG # DSL-1285****Block Number: 049A0602**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	46.16	46.20	46.90
2	45.19	44.51	45.39
3	45.18	44.59	45.82
4	44.12	45.03	46.00
5	44.61	44.57	45.10
6	43.71	42.95	43.74
7	43.36	43.10	44.13

BLOCK # 049A0602 Sample ID: IN224645



SIDE IMPACTOR BARRIER CERTIFICATION

Date: July 11, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: 018767
Work Order Number: 13552
Quantity: 05 pieces

CORE INFORMATION

Core Type: PCGA-1/4-5.2-P-3003-T
Measured Cell Size: 0.250 inches
Measured Density: 5.2 pcf

Unit Numbers: 035A0602 - 03 pcs.
058B0502 - 02 pcs.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 232 - 250 psi as per DWG# DSL-1285.


Quality Control Representative
Karl D. Zwaanstra





PLAScore

Crush Data

232 - 250 psi per DWG # DSL-1285

Block Number: 058B0502

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	234.88	233.03	238.26
2	245.89	246.74	234.83
3	244.45	242.80	244.84
4	233.66	232.58	232.66
5	241.14	241.30	238.97
6	241.47	241.27	241.95
7	241.53	238.17	235.74

BLOCK # 058B0502 Sample ID: IN224430

